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TYPES OF THE ROMAN MATRON, WHOSE INFLUENCE CONTRIBUTED TO THE SOCIAL GREATNESS OF THE ANCIENT LATIN WORLD.—While legally under the tutelage of her nearest male relative and incapable of owning property, the matron of early Rome yet enjoyed considerable freedom. She carried on her occupations in the atrium and had easy communication with the outside world; she was addressed by the honourable title of *domina*. She brought up the children, superintended the work of the household, and prepared the wool for weaving. Not until late Republican and early Empire times was she permitted an interest in the world of intellect and politics. When, however, the matron of the early ideal was allowed to widen her outlook, women like Cornelia, Octavia, Antonia, the elder Agrippina (the two last here depicted on right and left respectively), and many others, arose. During the Republic there was some weakening of the family life, until men changed their wives every few years to secure a fortune or a political alliance. The increase of wealth and the growth of Asiatic-Hellenic luxury appear to have played a large part in bringing about the moral degeneracy of Rome in the first three centuries of Empire. The devotion of the women to imported Eastern cults was a sinister feature from the time of their appearance during the Republic; but even during the worst social periods there were numberless exceptions to the lowered standard among women, and their effective pioneer work in the development of human society gave the term matron the honoured significance it has enjoyed ever since.

Date: From earliest Roman times. The portraits (Antonia, born 36 B.C. Agrippina the Elder, born before 12 B.C.)

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The Hunterian Oration

ON

HUNTER'S IDEAL AND LISTER'S PRACTICE.

DELIVERED BEFORE THE ROYAL COLLEGE OF SURGEONS OF ENGLAND ON FEBRUARY 14TH, 1927,

BY

SIR BERKELEY MOYNIHAN, BT.,
PRESIDENT.

ON this day, the 199th anniversary of his birth, we commemorate the services of John Hunter to the science and the art of surgery. In this year we celebrate the centenary of the birth of Lister. Hunter and Lister. From all who have ever served the cause of surgery these two stand apart by reason of the immeasurable gifts which they have conferred upon their fellow-men. May we to-day recall something of Hunter's work and of his ideals in respect of the conquest of disease, which the genius of Lister made possible!

Man's life is warfare. The individual, the whole race, is beset by foes—unresting, relentless. Against them our defence, if we are ever to subdue them, must be carefully planned, and diligently strengthened. But defence, however stubborn, is not enough. Attacks designed after scientific study of the enemy strongholds and methods, and launched with impassioned zeal, must never for one instant falter. Not all our attacks meet with success. We are cheered when we gain some notable victory, yet when we suffer defeat, as wave after wave of our advance is checked and repulsed, we do not lose heart. Failure inspires us to fresh and still more eager endeavour.

In this year, the centenary of Lister, we rejoice to acclaim the greatest victory ever won by man against his enemies. We who are in active work to-day are perhaps unable to measure the full extent of that victory; for during the long fight, lasting almost exactly sixty years, our standards have been so changed that we cannot truthfully compare our work with that of our intellectual ancestors. Operations from time immemorial so mortal as to be prohibitive are now freely performed without anxiety. Operations formerly unimaginable are now matters of everyday occurrence. The mere tale of such work done does not adequately illustrate the change. On my last day as surgeon on the full staff of my hospital I performed six abdominal operations. Not one of these was practised by any member of our staff during the year in which I became house-surgeon, nor had such a diagnosis as was made in three of these cases, and verified at the time of operation, ever then been attempted in the history of medicine. Above all, a statement of facts and a comparison of methods does not in adequate degree convey to our minds the difference of outlook, of the intellectual and spiritual approach of a man to his daily task, as between the surgeon in the days before Lister and since. It is barely possible for us to imagine how men felt about their daily work when an eminent surgeon could speak of his hospital as a "house of death"; when hospitals "were little short of pest-houses," as Lister said;[1] and when the oppressive mortality compelled the closure of wards or of a whole hospital for months, until the curse was lifted from them.

The change, of incalculable benefit to humanity, is due to one man—Lister.[2] Before Lister's time the surgeon dreaded the almost inevitable consequences of his operation. Lister made surgery so free from risk that we now may say that, with due care in the detailed application of the lessons learnt from him, it is no longer the fatality of the operation itself which is feared. In these days, when a patient dies it is not because the operation leads to septic complications which he cannot withstand. We fear for him chiefly, if not only, when the extent of the operation is formidable, or when the most sensitive regions of the body, sometimes remote and almost inaccessible, are attacked by methods which half a century ago were beyond the wildest dreams of the most adventurous mind. Our main concern in these days is with the condition of the patient before and after operation. We seek to make him as safe for surgery as surgery has been made safe for him. Lister, in short, has made all the methods applied by the surgeon almost devoid of risk in themselves. The risks run are dependent upon accessory factors—upon the state of the patient, the nature and extent of the disease, the intrinsic susceptibility of organs, or the anatomical conditions responsible for the difficulties which must be surmounted.

Do we fully realize the implication of all these statements? We are at the end of an epoch, indisputably the greatest in our history—the epoch in which manipulations by the surgeon have been robbed of the prohibitive dangers which formerly repelled. Now when failure comes it is the individual who fails, not the methods of which Lister laid the eternal and unshakable foundations. Lister by his genius recruited an army of surgeons which has gained astounding victories. The human body from crown to toe has for all time become our indisputable kingdom, within which we may come and go at pleasure, undismayed by the pestilences which menaced us before Lister forever subjugated our enemies. Lister is indeed Captain of the men of Life.

We who inherit the glorious legacy of Lister must not be content merely to enjoy and exploit our incomparable heritage. No great teacher measures his success in contemplation of his own efforts. His greatness lies rather in the work which he inspires others to do—in the tradition not of past accomplishment but of future devotion. Traditions are fostered and increased not by routine observance of ancient ceremony, nor by mute obedience to outworn creed, but by active faith forever seeking new truths and exploring new paths, in conformity with the old spirit and with unchanging devotion to the great ideal of which the tradition is the shrine. There is immortality of the tomb, and immortality of the resurrection. The soul of a great teacher is born again in his pupils. What, then, are we to do with Lister's gift to mankind? We use it already to the immense advantage of the individual sufferer; a therapeutic weapon of unapproached perfection, we are making it, and we must continue, in increasing degree, to make it far more than that. After the great war the statesmen of Europe, moved by the highest ideals, sought, not perhaps wholly in vain, to convert the allied victory into lasting peace. The statesman's ideal is a warless world. War is to end war. Ideals are not so much for capture as for pursuit, and though the statesman may never attain his ideal, yet the happiness and progress of mankind surely depend upon the grim and perhaps endless struggle to reach it. So, too, for us surgery must be regarded as the most powerful weapon of research upon man and animals ever given to our hands; and the end of research is not the cure only, but, far better, the prevention, of disease.

HUNTER'S IDEAL.

The Oration I have now the honour to deliver was founded 114 years ago as "a lasting mark of respect to the late John Hunter."[3] Let us turn to Hunter, the greatest surgeon of all the ages before Lister, and see how he regarded the art he practised. In the opening lecture of each surgical course Hunter said to his students:[4]

> "The last part of surgery, namely operations, is a reflection on the healing art; it is a tacit acknowledgement of the insufficiency of surgery. It is like an armed savage who attempts to get that by force which a civilized man would get by stratagem."

In his *Treatise on the Venereal Disease*,[5] a work more frequently quoted for its glaring errors than for its profound truths, he indicates one of the ways which lead to this ideal, the prevention rather than the cure of disease. He writes:

> "As disease in general should not only be cured but when it is possible prevented, it will not be improper to show, as far as we know, how that may be done: for in this disease we can with more certainty prevent infection, its origin being known." He

then adds, "... corrosive sublimate in water, about a grain or two to eight ounces, has been known to prevent the catching of the disease."

Hunter anticipated that a time would come when surgery, gaining much from the general advance of knowledge, might be rendered both knifeless and bloodless. I do not speak with irony when I say that Lister's work has brought us appreciably nearer to Hunter's ideal. It is true that its first effect has been to increase a hundredfold the operations practised, and to cause an advance into territories never before subdued. The advance was timorous, halting, and at first so unsafe that the men who led the thought of the day, whose stubbornness was iniquity, whose changeless idolatry was the worship of the images of their fathers, did not hesitate to demand that he who practised such a deadly operation as ovariotomy should be indicted for manslaughter. Lister so taught us that to-day, with little risk and with incomparable advantage to our patients, we, strong in the faith that our fathers rejected, not only attack disease with remedial operations, we also seek out and expose, we inspect and study it in its deepest recesses, and in its earliest structural manifestations, sometimes discovering its cause, or at least its impressive antecedent, and often tracing the lines of its gradual extension. We are at last coming to appreciate the reaction of living organs upon each other. As I have claimed on earlier occasions, we have created and are slowly building up knowledge from which our predecessors were completely debarred—not new science, but new vision of an old science: the pathology of the living. This branch of surgical learning will continue to grow, and therein surely lies our hope that surgery may one day help to end surgery, by enabling us to discover how those earliest processes of disease may be inhibited. Some claim this as the era of preventive medicine. Is there not preventive surgery also? Hunter was possessed of an ideal. Lister gave the power to realize it. We too wage war to end war. "*Pereant arma bellica.*"

At the end of a long, arduous, and triumphant surgical campaign we, if we are prudent and foresighted, shall survey our equipment and our arsenals and consider the strategy of our next advance. The military leader of to-day seeks help from every branch of science; the victorious leader is he who best knows where to seek the help of which he is in need; who has the genius early and quickly to perceive how all new knowledge can be best applied to the art of war. Surgery too is warfare; its advance is conditioned by contemporary progress in every branch of science, and its virtue lies in the number and the vigour of its allies. Into what alliances, then, has surgery entered with other branches of knowledge?

SURGERY AND THE ANCILLIARY SCIENCES.

The science of physics has brought radiology to our aid, and the discovery of the x ray has rendered the living body translucent. After an opaque meal these rays disclose the normal movements of the alimentary canal, and we learn, as in no other way, the functional anatomy of the intestine. Any defect of outline may reveal a structural deformity and perhaps enable us to make a precocious diagnosis of conditions whose terminal stages when neglected are fatal.

The art of the chemist can be allied with that of the physicist, as the work of Graham of St. Louis has shown, with the result that the physiology of the liver, the functional anatomy and the pathological conditions of the gall bladder, the association of gall-bladder activity with movements of the duodenum, may all be studied by a new method. And this method, in alliance with that of the surgeon, realizes another stage in our advance towards the prevention of gall stones, themselves a tardy result of insidious changes originating elsewhere. Chemistry lends its invaluable aid in discovering for us the functional activity of the kidneys, and by its investigation into the cholesterin and calcium content of the blood is helping us to understand some of the problems relating to the functional activity of the liver and gall bladder. Such conditions as acidosis and alkalosis offer impenetrable secrets if chemistry is not brought to our aid.

Physiology by its inclusion in the Faculty of Medicine acquires a double function: it remains a pure science, directing its inquiries solely to the advance and perfection of knowledge; but it becomes also an applied science, in league with clinical medicine and surgery. As he sees his conquest of knowledge applied practically to the saving of human life the physiologist will be encouraged to yet closer study of normal and aberrant vital processes in man. He too should stand with the surgeon by the bedside. The great gap between the powers of the surgeon and the aid which the physiologist might give would thereby be reduced, and the reproach removed from his science that in this sense it is lagging far behind. The surgeon's activities enable him to uncover the hidden mysteries of early structural changes. He offers new opportunities for the study of normal and perverted function to the physiologist, with whom he might inquire into those early functional changes which correspond to and are caused by organic disorder. The surgeon seeks earnestly to know what degree of impairment of function is to be attributed to the textural changes which our new methods have revealed to us. The physiologist may tell us much that we are eager to learn of the effects of our manipulations upon the normal activity of tissues, and of the full or imperfect return of function when diseased tissues have been removed. With his help we may learn what without him we may never learn—the significance and the methods of the causation of early symptoms, and the origins of those pathological changes with whose late mutilations we are, unhappily, only too familiar. With our help he has learnt what otherwise he could not learn—that, for example, the spleen by an excessive destruction of red cells may be responsible for a condition of jaundice, and that the removal of the enlarged spleen results in the disappearance of the jaundice, which is thereby demonstrated to be of haemolytic origin. Physiologist and surgeon are, far more often than is realized, necessary to each other, and a closer communion should exist between them. Many of the truths the physiologist endeavours to teach can be demonstrated more clearly in the wards than in the laboratory, and are therefore, because of this human interest, impressed almost indelibly upon the minds of students. The phenomena of cerebral compression, of Traube-Hering curves, of Cheyne-Stokes respiration; the symptoms of hyperthyroidism, and those produced when the secretion of the thyroid gland is diminished or absent; many of the aspects of jaundice, in addition to the demonstration of haemolysis as its occasional cause, and of the relations between the liver, the spleen, and the bone-marrow; illustrations of the normal and aberrant functions of the kidney; changes in the chemistry and constitution of the blood, may all profitably be discussed in the ward rather than in the laboratory or the lecture theatre. Students would then realize from their earliest days the truth which later comes almost with a shock—that physiology and anatomy are not fundamental subjects, but are interstitial, and should grow alongside and be incorporated with the facts of clinical medicine and surgery, which they illuminate and explain.

Interstitial tissue has as one of its functions the carrying of blood vessels to nourish cells whose activity is dependent upon the richness of their blood supply. Biology provides the interstitial tissue of surgery; the activity and the growth of surgery depend upon the nourishment which biology may bring. Unless surgery calls in the aid of all the sciences with which biology is related it will remain as static as ancient geometry, whose figures were drawn once for all. Modern geometry is concerned with function, with the variations of movement by which a figure is described. Surgery's concern in the future will not only be with the states produced—with established organic disease—but with its allies it will help to eradicate some of those variations in function by which perhaps they have been caused, with which they are associated, and by which their presence is declared.

If sometimes we blame Sharpey and his school for the unhappy cleavage between anatomy and physiology[6] we must at least acknowledge the great debt we owe to him for laying so firm the foundation of new methods for the

studying of functional anatomy in man and in animals. Physiology, with its offspring biochemistry, has introduced physical and physico-chemical methods—methods of quantitative observation which have supplemented where they have not supplanted the merely qualitative methods. The brilliant work of Sherrington, Lucas, and others upon the nervous system gave us fresh conceptions of it; further advances along their lines were becoming difficult until the application of thermionic valves made it possible, by recording the transmission of impulses in the afferent nerves, to investigate the effects of stimuli upon the sensory end-organs. And in the interpretation of symptoms, a study to which my old friend James Mackenzie bent the strength of a most eager and original mind, physiology alone can read the occult significance. In acute pancreatitis there is, as Halsted,[7] a great benefactor of mankind, first told us, a lividity of the face. Why? Is it due to some disordered action of the respiratory system imposed by the closeness of the affected organ to the diaphragm and the structures which lie above it, or is there circulatory stasis, or alteration in the blood pigment?

Physiology is the master of all the methods by which these three possible causes may be quantitatively investigated. Estimations of the oxygen saturation of the arterial blood give information of disturbance of respiratory function—information which we may compare to that derived from a measurement of the amount of blood urea when the renal functions are deficient. Estimations of the carbon dioxide combining power of the blood are essential if we are to recognize the presence and the degree of acidosis. Circulatory stasis may be gauged by the ethyl iodide method of measuring the circulation rate. Alterations of the blood pigment are detected by the spectroscope, and quantitative estimations of abnormal pigments are readily made after the method of Hartridge.

Like the physiologist, the bacteriologist is engaged in work which is ranged alongside our own. The more he discovers of the offensive powers of bacteria and of the defensive mechanism of living flesh under their attack the nearer are we brought to our surgical ideal. The alliance between bacteriologist and surgeon has been necessary for the proof that the true estimate of an antiseptic is not measured only by its bactericidal value tested in the laboratory, but also by its power to encourage the blood serum or the tissues themselves to ward off and to break up an attack. Hunter, with the crude methods which were all he had at his disposal, demonstrated the tryptic power of wound discharges, and anticipated a part of the admirable work of Almroth Wright during the war. Who could have imagined, when Lister's work began, that to-day we should be able to keep tissues alive in our laboratories, breeding them and growing them in captivity, separating the one kind from the other, noting the influence which one type of cell is able to produce on its neighbours, and thus coming by the kind of knowledge which John Hunter so earnestly sought—a knowledge of the intrinsic processes of growth and repair? The problem of malignancy is now installed in our laboratories, and the cancer cell is being compelled to yield most reluctantly some of the complex secrets of its Bolshevist behaviour.

The old art of vital staining, which Hunter learnt from Belchier of Guy's, has taken on new improvements: by means of suitable dyes we can now select special elements in the living body, trace their movements, and note their conduct. The experimental embryologist, too, can help us if we seek to know in what manner the various tissues of the body come into existence.

HUNTER: PASTEUR: LISTER.

These, then, are the allies of surgery in the great war: Biology in all its branches, Chemistry, Physics, Radiology. Never before has the master surgeon had such bountiful resources at his disposal. He cannot afford to neglect a single one of them. The urgent problem of our time, therefore, is a dual one: We must seek to determine the line of advance which surgery will trace in the years ahead, increasing and strengthening our alliances; and we must earnestly discover how the leaders of our army of advance are to be trained. Are the old methods, which in their day served so well, still enough; or is the form of warfare already so changed, and now so rapidly changing, that a new discipline and a wider knowledge are needed?

To answer these questions we must look backwards, and, calling upon our past experience, seek in the records of our great masters not so much what their knowledge was, but what methods they pursued as they qualified themselves for great leadership. We shall find at once that Hunter and Lister, incomparable among surgeons, each put himself through a long and arduous training, never resting in his inquiries as to the activities of living matter, as to its behaviour in health, and its reactions in disease. At the threshold of our survey we recognize that the activities of our two leaders are not unrelated. Hunter's professional life covered the latter half of the eighteenth century, Lister's the corresponding half of the nineteenth century; between them there intervened two generations of surgeons. My distinguished predecessor, the late Sir Rickman Godlee, who gave this oration in 1913, tells us in the Life of his uncle, Lord Lister,[8] that "Hunter was Lister's greatest hero"; that "his copy of Palmer's Life of Hunter was marked in many places by pencil notes which show that he was studying it at least as early as 1855"; that "a proof of Sharp's engraving of the portrait of Hunter by Reynolds, which had belonged to Syme, hung in his study"; that "he always spoke of Hunter with reverence." Further, if we turn to the paper[9] which Lister read to the Medico-Chirurgical Society of Edinburgh in March, 1858, on the "Causes of the coagulation of the blood," we find evidence of his early admiration of Hunter.

> "The nearest approach," he wrote, "which I have been able to find to such an observation [that blood which is retained in the smaller veins of the body remains uncoagulated] is contained in that inexhaustible treasury of original observations and profound reflection, the works of John Hunter."

If I may borrow a simile from the football field to express the relation of these two great men, I would say that it was Pasteur who made the final pass to Lister possible; it was Hunter's captaincy in the scrum that placed Lister in the scoring position. Indeed, we have to admit that while Hunter's resource in midfield has never been excelled, or even approached, and though the ingenuity with which he worked the surgical ball towards the goal remains unsurpassed, yet when he was in a scoring position and we were counting so confidently upon a "try," the ball was fumbled, and our hopes were foiled. The young surgeon of to-day can learn almost as much from Hunter's mistakes as from his triumphs.

HUNTER'S DISCIPLINE AND METHODS.

Let us now examine the discipline to which John Hunter submitted himself to attain his leadership. He is the "Dick Whittington" of British surgery. In September, 1748, at the age of 20, he left his home, an upland farm in the parish of Kilbride, eight miles to the south of Glasgow, and, travelling on horseback, he entered London in a little under a fortnight, alighting in Covent Garden, where his brother William kept a school of anatomy. William Hunter was beyond doubt the foremost medical teacher of his time; his best pupils caught from him the spirit of research: among his inspired disciples were John Hunter, William Hewson, William Cruickshank, Charles White of Manchester, and William Hey of Leeds, the founder of the Leeds Infirmary, the first stone of which was laid in 1767 by Edwin Lascelles, the first Lord Harewood. In 1751, after three years of study, John Hunter counted himself a qualified surgeon; he remained in his brother's school to teach and to research, at what salary we cannot now tell, but assuredly it was a small one. John Hunter thus entered the critical years of his life, for the career of a young surgeon was determined then, just as it is to-day, not so much by his conduct during the years of pupilage, as by the use made of the period after qualification. The problems which a young surgeon first attacks, and the methods he employs to solve them, are suggested to him by the age in which he lives and by the school in which he has been trained. In John Hunter's youth a knowledge of the human body was being extended

by a skilled use of the art of injection. And so we find him in his earlier years following arteries to their ultimate termination, tracing the course of lymphatic vessels, unravelling the structure of the testis and kidney by means of an expert use of the injecting syringe and of the hand lens. He remained in his brother's school teaching and researching until the spring of 1761, when he entered his thirty-fourth year.

Here is a list of the subjects he investigated during that period. He began to note the earliest stages in the development of the chick[10] and continued this study to the end of his life, deriving from it guidance for the interpretation of the phenomena of repair and of disease. We find him exposing the thoracic viscera, using artificial respiration, and noting accurately what happened to heart and lungs when the air supply was withdrawn and when it was renewed.[11] He studied respiration in birds, keeping cocks alive which breathed through the cannulae inserted in their air sacs instead of through their windpipes.[12] He carried out a series of experiments on absorption from the bowel in various animals; the experiments were well planned and skilfully executed, but he drew from them a wrong inference—one which misled him subsequently time after time—in the interpretation of the processes of disease. He believed that these experiments proved that all the products of digestion were absorbed by the lacteal or lymphatic system, and that none entered by the veins.[13] Our hero, as we have seen, was often weak when he approached the goal posts. We find him tracing out the distribution of nerves in the nose and giving, for the first time, the right explanation of why the fifth pair of cranial nerves should enter into the field of mucous membrane supplied by the olfactory nerves.[14] The description he then gave of the descent of the testis[15] and of the vital phenomena which attend that still mysterious operation has never been surpassed. He kept a tame kite to prove that a stomach accustomed to a flesh diet could be educated to deal with one which was purely vegetarian; he noted the phenomena of digestion in the stomachs of fish, fowls, dogs; he explained *post-mortem* destruction of the stomach.[16] He placed pieces of raw meat in suppurating wounds and observed the digestive effects which followed; he measured the digestive (or tryptic) action of pus.[17] We find him deeply interested in the formation of pus upon the unbroken surfaces of serous and of mucous membranes. He began a series of observations on the uses of the vesiculae seminales,[18] and was led thereby to investigate experimentally the potent and mysterious influence which testis and ovary exercise on the development and growth of the body.[19] We find him seeking signs to distinguish between tissues in which life was latent and those from which life had already vanished. He believed he had discovered the organ of hearing in fishes, and sought to discover an explanation of the curious fact that the ovaries of eels were always destitute of ova.

As a collector—like Pascal a *ramasseur de coquilles*, who often found a pearl of great price—as an observer of incredible industry, gathering facts just for the sake of their individual value and without at the moment any care for their relative significance or for the effect of their impact upon other facts, he ranks second only to Hippocrates. But when these facts were stored in his mind and illustrated by a series of specimens he was by no means inexpert in their interpretation or in raising a general truth from a multitude of singular examples. But as we read we seem to be oppressed by the verbal difficulties he encountered. The words will not come. Even the constructive thoughts may sometimes appear to be absent, puny, or unmanageable. He cannot get his mind round them. If by chance we seem to think that he has done so, the splendour of his thought is disfigured by his uncouth language. Abernethy is not alone in telling us of Hunter's paucity of language and of his inaptitude in its use; but we need no other evidence than that which his own works rarely fail to give us. His letters are the same. Illiteracy is not absent from them, though their meaning is often clear enough, especially when express instructions are given. It is when Hunter endeavours to rise to abstract generalizations that we see this incapacity chiefly and lamentably displayed. Obscurity of language, I believe, even in abstract matters, often means obscurity of thought. Words may come after thought, but not long after, surely. Hunter's defects in language were due in part, no doubt, to the absence of any early education of value, but they were not lessened by his studious avoidance of the work of others. His rebuke to Jesse Foot, as brutal and irrelevant as many of Johnson's, would have confounded anybody, but it is irrelevant nevertheless, and it was a confession of his own imperfection.

After spending fully twelve years experimenting, John Hunter in the spring of 1761, and in the thirty-fourth year of his age, engaged in the practical work of his profession and was appointed surgeon to the army. In the summer of 1763 he returned to London on half-pay and commenced practice. He bought "a piece of ground called Earl's Court, near the village of Brompton, and two miles from Hyde Park Corner," on which he built a small house. Earl's Court, his week-end cottage, was soon converted into a zoological garden and experimental laboratory; many new problems engaged his mind and several avenues of investigation were opened up there; all of them were made to converge on the same subject—the behaviour of living matter under all conditions. It was not until 1768, when he was 40 years of age, that his private practice began to grow, enabling him to take a lease of the house, 42, Jermyn Street, vacated by his brother William. We may now consider him, after an apprenticeship of twenty years, fairly launched in practice. Three years later he considered that his income justified him in undertaking the responsibilities of marriage.

We see, then, this leader of surgery of the eighteenth century devoting twenty years of his life to arduous observation and experiment so as to qualify himself for the practice of his art. There has probably never been a man in our profession with so wide an intellectual interest, so profound a knowledge of so many varied subjects wholly derived from direct personal inquiry and observation. His industry was inexhaustible. He had no equal either as physiologist or pathologist; he was already first among comparative anatomists, and was indeed one of the founders of this science. He was a naturalist, all subjects in animal and vegetable physiology seeming to attract him. All his unequalled attainments as biologist were brought to the service of surgery, in his hospital work and finally in the largest private practice of his day. Before Hunter's time surgery was a thing apart, independent of all other sciences, ostentatiously aloof from them, and governed only by the experiences and aptitude gained in the day-to-day practice of the art. All advance was therefore slow, even when recognizable, and was largely empirical. No physiological knowledge, nor any experimental discovery, broadened the old path or opened up new ones. Hunter changed all this. Not the least of his achievements was that he made alliances for surgery, and linked it inseparably with biology. Hardly a day passed without some experiment. I may quote a statement of his to show how he regarded experiment.[20]

> "In pursuing any subject, most things come to light by accident; that is, many things arise out of an investigation that were not at first conceived, and even misfortune in experiment has brought things to our knowledge that were not, and probably could not, have been conceived; on the other hand, I have often devised experiments by the fire-side or in my carriage, and have also conceived the result; but when I tried the experiment the result was different, or I found that the experiment could not be attended with all the circumstances that were suggested."

This statement helps in some degree to explain the number of apparently unrelated subjects which Hunter explored in his younger years. As he opened a new subject, he still continued to investigate the old; at the time of his death he had over fifty portfolios in use, each relating to a particular line of investigation.

The "misfortune in experiment" has its counterpart in operative surgery. An interesting little paper might be written on "The advantage of error in medicine." We may recall Spencer Wells's operation for an "ovarian cyst," when tuberculous ascites was found and the surgical treatment of peritoneal tuberculosis inaugurated. The

same distinguished surgeon, a pupil of the Leeds school, operating upon a jaundiced girl of 18 for "fibroid tumour of the uterus," discovered that the tumour was not pelvic but splenic. He removed the spleen: in a few days the lifelong jaundice was gone, and the surgical treatment of haemolytic jaundice was begun. So McGill, the pioneer in the operation of prostatectomy—precedence in which is so foolishly claimed for others—removed what he believed to be a "tumour at the base of the bladder." When I, acting as his house-surgeon, examined the tumour microscopically and found that it was prostatic, I felt that I had the chance to twit my beloved chief with his error. His reply when I told him of his mistaken diagnosis was, "Then why don't we always take the prostate out when it projects into the bladder?"

LISTER'S DISCIPLINE AND METHODS.

When we compare Lister's preparation for professional leadership with that of John Hunter we are impressed rather by the resemblance than by contrast. Lister, the greatest material benefactor of mankind that the world has ever known, began his medical studies at University College, London, at the age of 21, in 1848, exactly a century after John Hunter had settled down to his work in Covent Garden. In the hundred years that had passed medical education in London had undergone a revolution; voluntary schools had almost disappeared, to be replaced by the organized schools and colleges with which we are familiar to-day. John Hunter was Scotch, Lister English, his ancestry coming from Yorkshire and Cumberland. John Hunter owed much to his brother, Lister still more to his father, who was not only a successful man of business, but also a Fellow of the Royal Society. William Hunter, who impregnated the mind of his brother, drew his own inspiration and owed his intellectual guidance to the Monro-Cullen school of Edinburgh. Lister was early influenced by William Sharpey and by Wharton Jones, both Edinburgh men steeped in the traditions of this very school. After qualifying in 1851, and taking the Fellowship of this College at the age of 25, Lister's first research was begun: it was concerned with the contractile tissue of the iris.[21] The injection syringe, the new instrument which had served Hunter so well, had been displaced during Lister's youth by the microscope. We rejoice, nevertheless, to notice that when Lister applied this new instrument to the tissue of the iris, it was the function rather than the form of this structure which excited his interest. In this investigation, and in another[22] begun in 1852, "Observations on the muscular tissue of the skin," we recognize that, influenced by William Sharpey, he had become familiar with discoveries made in other countries, notably with those of Kölliker in Germany. But clinical work was not forgotten, and a house-surgeoncy at University College was followed by perhaps the most critical event of Lister's life. In tracing the motives which have directed the progress of medicine we are constantly reminded of the influence and the power of great teachers. Such men are gratefully remembered by posterity—not so much for the work which their own hands or minds have created or have modified; not for their written words which so soon seem to possess little more than an antiquarian interest; not for their spoken words, which, though at the moment of their delivery they may walk up and down in the hearts of men and stir them to new thought or to great action, yet seem so frail and cold and lifeless when the morning comes—not for any of these, but for the spiritual legacy they bequeath to those trained in their own methods and inspired by their own zeal. It is this which gives posthumous life—the true immortality.

Not the least of the claims that John Hunter makes upon our reverence is that he was the first founder of a School of Surgery. He was not distinguished as teacher. "He had not the happy talent of displaying the stores of his mind, nor of communicating to others the same perception of the importance of his facts and opinions as he himself entertained."[23] Abernethy said his language was "inelegant and often coarse"; "his delivery heavy and unengaging"; "his method confused with attempts to find words for thoughts, or else to read from little scraps of paper." Yet despite these unattractive or even repellent qualities, men who themselves influenced surgery for generations afterwards, whose influence still survives—Abernethy, Astley Cooper, Cline, Everard Home, Blizard—all boasted of being his pupils, and taught his method until it became, and still remains, a tradition in their schools, and from them has spread to every school of medicine in the world, where Hunter is recognized, unchallenged, as the founder of scientific surgery. So, too, our debt to Italy will be forever unrequited while we remember that it was the magnetism of Fabricius that drew Harvey to Padua. But for Fabricius and the magic of his work the discovery of Harvey, the great glory of British medicine, might not have been made for generations.

William Sharpey, whose lectures "inspired me with a love of physiology that has never left me," had not only Lister's future, but also all that this meant for mankind, in his own hands when he sent Lister to Edinburgh to the "safest surgeon" of his day, James Syme. It was an almost incredible exodus. When the Hunters came southwards they followed a national habit established for centuries, and never permitted to fall into disuse—a habit which incited the characteristic irony of Samuel Johnson. When Lister went northward he founded a new tradition and made a novel breach in a custom which seemed to have become as firmly accepted as a law of nature. Lister's most distinguished successor in his chair of clinical surgery, my old friend Harold Stiles, made the same adventure, to Scotland's great advantage.

London hardly notes and seems but little disturbed by the arrival and the progress in her midst of young medical men from Scotland. (Whatever would she do without them?) Edinburgh, one may suspect, raised her eyebrows when she saw a young doctor from London established as Syme's house-surgeon; and she must have rubbed her incredulous eyes when, within two years, she saw him become an extramural lecturer in surgery within her own stronghold. It is quite impossible to exaggerate the importance of this teaching appointment on Lister's future. He met his students—the ultimate number in his first class was seven—on Wednesday, November 7th, 1855. Lister believed, as Hunter had believed, that the beginning of surgery was a knowledge of the process of inflammation; and accordingly he had resolved, before his lectures commenced, to obtain a new first-hand acquaintance with inflammatory processes as watched in living tissues. Clearly he realized long before the humblest of his intellectual descendants the need to study the "pathology of the living." A frog was caught in Duddington Loch—surely the greatest frog in history, honoured by being made the subject of this research. Why did not someone suggest to Lister when he was granted arms that this frog should be immortalized in heraldic device? The web of this frog's foot gave all the necessary opportunities for the inquiry. Lister had many new advantages over Hunter: he knew that the tissue he examined was made up of living units—cells; he had at his disposal a powerful microscope, which could mark the behaviour of these cells; and Claude Bernard in 1853 had taught him the existence of vaso-motor nerves. It was during the examination of the frog's web that Lister made a biological discovery of the highest importance—one which experimental biologists are still exploiting: that pigment-containing cells such as are seen in the frog's web give more easily visible, and more delicate, reactions than any other kind of living cell, when subjected to a physiological or a pathological stimulus. This quality enabled him to study the effects of inflammation in terms of individual cells. He was able to prove that these pigment cells still gave vital responses fifteen days after the leg had been amputated.

The list of researches carried out by Lister between the time of his arrival in Edinburgh in 1853 and his appointment to the chair of surgery in Glasgow in 1860 would almost suggest that he was seeking to fit himself to become an experimental physiologist or pathologist rather than surgeon. I would earnestly emphasize this point, for its significance in Lister's day was far less than it is to-day, when the full harvest of his work is ready to be gathered. In most of these researches we can clearly see the strong

influence of John Hunter. It is not accident, surely, that the men who have done most for surgery trained themselves rather as research workers than as practitioners, that they revelled in and set out to master one problem after another in biology. Lister's acknowledgement of the immense influence of Hunter upon him is not in the least overstrained. If the spirit of Hunter watches over his Museum and this College, as we hope it may, how infinite must be its pride in the thought that the one man greater in service than Hunter himself was his direct intellectual offspring!

Let me recall the names of a few of Lister's early papers: that "On the flow of the lacteal fluid in the mesentery of the mouse,"[24] begun in 1853 and published in 1857, is a direct extension of Hunter's experiments on absorption;[25] the communication on "The persistent vitality of the tissues"[26] is founded upon observation made by Hunter himself on the same subject. The studies on "Coagulation of the blood" began by observing what happened in the veins of "sheep's trotters" taken from the shambles. By devising new and critical experiments he was able to carry the knowledge concerning coagulation to a point far beyond that which Hunter had reached a century before him. Yet his methods were clearly modifications of Hunter's. Lister's vocabulary, indeed, was still that of Hunter: for he spoke of the "solids" of the body, of "preternatural stimuli," of the "disposition of the tissues," of "inherent tendencies," and of "sympathetic irritation."

THE ANTISEPTIC SYSTEM: PREVENTIVE AND CURATIVE.

The events which followed Lister's arrival in Glasgow are too well known to all the world to need more than the briefest recapitulation. Lister was then 33 years of age, almost the same age as Hunter when he joined the army as a surgeon. As a result of seven years of a preparatory experimental investigation, conjoined with a wide clinical observation which was closely related to it, he had become immersed in all the problems relating to inflammation and suppuration. He had already formulated a hypothesis that suppuration was due to putrefaction, and in 1865 was ready to put his supposition to a practical test. Pasteur's epochal discovery that putrefaction was due to "germs" set matters going. Lister wrote:[27]

> "To prevent the occurrence of suppuration, with all its attendant risks, was an object manifestly desirable; but till lately apparently unattainable, since it seemed hopeless to attempt to exclude the oxygen, which was universally regarded as the agent by which putrefaction was effected. But when it had been shown by the researches of Pasteur that the septic property of the atmosphere depended, not on the oxygen or any gaseous constituent, but on minute organisms suspended in it, which owed their energy to their vitality, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles."

Lister was first of all concerned with the destruction of organisms after they had obtained access to wounds. He knew of the experiments with the Carlisle sewage, and of the bactericidal properties of carbolic acid. He observed carefully the effects produced upon living tissues by antiseptics, and concluded that the reparative processes in a wound were not thereby weakened. We are apt, however, to forget the gradual change that came over Lister's views, and the effect this had upon his practice: how he came to a full realization of the essential powers of defence possessed by the living tissues, and of our obligation to protect and if possible to increase them. Sir Rickman Godlee, who knew more of Lister than any man, has written that Lister before 1881, when he first told the world of his changed opinions, "had long recognized and taught that healthy living tissues exercised an inhibiting influence on the growth of micro-organisms. . . . He therefore began to wonder, whether if only slightly damaged, for example, by the incision made by a very sharp knife, the living tissues of any wound might not be able to deal with a certain number of germs by their own efforts." This we gleefully observe is a return to Hunter's work in which he recognized the "powers," "disposition," and "action" of living tissues. It may not be inappropriate to quote Lister's own words. He writes:[28 29]

> "The original idea of the antiseptic system was the exclusion of all microbes from wounds." Again, "During the operation, to avoid the introduction into the wound of material capable of inducing septic changes in it, and secondly to dress the wound in such manner as to prevent the subsequent entrance of septic mischief." Again, "In wounds already septic attempts are made with more or less success to restore the aseptic state." Again, "In speaking of the antiseptic system of treatment I refer to the systematic employment of some antiseptic substance so as entirely to prevent the occurrence of putrefaction in the part concerned, as distinguished from the mere use of such an agent as a dressing"; and further, "I always endeavour to avoid the direct action of the antiseptic substance upon all tissues."

The distinction between the preventive and the curative use of antiseptics is in many respects that existing between, on the one hand, the power of a germicide as determined by experiments *in vitro*, and, on the other hand, its capacity to destroy organisms when it is introduced among the living and the dead tissues of a wound. In the former there is a direct conflict, a clean fight between the microbe and the chemical agent. Few or none of the many intervening conditions are present which have to be considered when a bactericide is introduced into a wound cavity wherein there are multitudes of actions and reactions which even now seem very obscure and are so often conflicting.

We may therefore regard Hunter and Lister as bridge-builders; it is out of a multitude of scientific observations, of apposite inferences, and of wide generalizations that such bridges are built, stone by stone, arch by arch. Posterity will perhaps remember only the one bridge—permanent, indestructible, all-sufficing—of Lister. Across that bridge we have swarmed, a triumphant host, and a vast new territory has met our almost incredulous eyes. Hunter was forever building bridges, ambitious in design, firm in their foundations, but always left unfinished. Some day new architects will come and give them the full span which Hunter surely meant them to have. It is remarkable to note how often he anticipated the lines along which we see that modern surgery is making its advance. Cultures of both benign and malignant tissues are now being kept alive by methods which, devised by Dr. Ross G. Harrison while studying the growth of fibres from the nerve cells of a tadpole, have been rapidly developed by Alexis Carrel. John Hunter, too, tried his hand at experimental embryology. He "exposed the little animal [the chick embryo] by putting it into water heated to about 104° F. just covering the egg" and "hoped to keep it alive by these means and observe in the same chick the whole progress of growth, but it soon died"; therefore, he says "I was obliged to have recourse to a succession."[30] He was an experimental surgeon, as may be shown from the following quotation[31] from one of his lectures:

> "Here is the testicle of a cock, separated from that animal and put through a wound, made for that purpose, into the belly of a hen, which mode of turning hens into cocks is much such an improvement for its utility as that of Dean Swift when he proposed to obtain a breed of sheep without wool. The hen was afterwards killed and the testicle was found adhering to the intestines, as may be seen in this preparation where the parts are preserved."

He devised and carried out experiments to ascertain whether the growth in a cock's spur is due to a "disposition" inherent in the spur or derived from the constitution of the cock. He excised spurs from the legs of cocks and implanted them in their combs to note the rate of growth under such unfamiliar surroundings. The first vital stain ever used was madder; it was introduced to the notice of biologists in 1764 by John Belchier, surgeon to Guy's Hospital; by its experimental application John Hunter revolutionized our knowledge of bone growth and bone decay.[32] In the hands of Professor A. V. Hill the measurement of heat in living tissue has become the most delicate and certain indication of the nature of their vital reactions. The manner in which living matter reacted to

the application of heat and cold, and to a degree of heat generated in living tissues, Hunter made the subject of an endless number of investigations, all with the practical view of ascertaining how much or how little should be done to keep damaged human tissues alive.[33] Here was, as we have seen, an experimental physiologist and also an experimental pharmacologist.[34] He was a psycho-analyst;[35] he tried to inoculate an ass and a bitch with the virus of syphilis.[36] He preached the doctrine of operating at the earliest possible stage of a disease, and, placing himself in the position of the patient, said, "Nor do I go further than I now think I would have performed on myself were I in the same situation."[37] He performed experiments on the sensitive plant which are now being repeated.[38] These are only some of the points in which Hunter has anticipated modern progress.

So much for the past in its relation to our greatest men. What of the future?

THE FUTURE.

As I look forward I like to humour my fancy and indulge my dreams. Imagination, Keats tells us, may be compared to Adam's dream—he awoke to find it truth. The art of the surgeon is the pillar of science, and it is for science to discover how that almost perfect art may now be used to the fullest advantage. We eagerly await the day when disease shall not require to be checked in high career, but shall be blighted at its origin, or even denied existence, when our weapons of war shall be laid aside. That day may yet be far away, but already beyond the distant hills we see promise of the dawn. It does not, perhaps, so much or so deeply concern ourselves as those who soon must take up our task, and lead the hosts whose victory shall attain our high ideal. In due time, and in accord with ancient precedent, this country of ours, the fruitful mother of so many gifted sons, shall raise up in our schools the youths who shall go forth to conquer a crown. They will be best equipped who keep to the course, recall the methods, and are imbued with the ardent spirit of the two famous men whom we praise to-day—the two greatest surgeons the world has ever known.

Our youths must be prepared for self-sacrifice, for arduous discipline, perhaps for the most heart-breaking rebuffs, for the stern or even bitter criticism of their fellows. But there never was a time so rich in promise, so laden with rewards for those who labour with sincerity and truth. They will not travel alone. The whole army of science is in league with them, moving forward with incredible speed, eager to lay at their feet the triumphs of its astounding conquests. The responsibilities which rest on them, the intellectual accomplishments and the dedication of their lives demanded of them, are enough to cause the stoutest heart sometimes to falter. Yet, armed with the sword of the spirit and the breastplate of faith, they will remember that the happiness of life lies in its responsibilities, that true joy is found in the search for what may after a weary journey prove unattainable. Ahead lies the noblest of tasks to which they may consecrate themselves: for the lives of men are in their hands, the love, the happiness, the whole welfare of mankind. We need not fear. They will be worthy of their charge. God counts not result but effort.

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EXPERIMENTAL PRODUCTION OF ACUTE AND CHRONIC ARTHRITIS AND ARTICULAR NEOPLASM BY RADIUM.*

(With Special Plate.)

BY

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A FEW years ago, in a Hunterian Lecture on osteo-arthritis, I ventured the opinion that the peculiar proliferations of bone and cartilage often occurring in the more chronic form of arthritis usually known as osteo-arthritis, some of which attain a very considerable size, were intermediate between a frankly inflammatory process and a genuine neoplasm. The difficulty experienced in distinguishing between the two was so great that some of the loose bodies occurring in osteo-arthritis were designated "synovial chondromata" by Professor Shattock and myself. It is unnecessary to enter now into the histological differences between such forms of proliferation and frankly inflammatory developments. It is interesting to note, however, that the form of chronic arthritis usually known as "rheumatoid arthritis" or "chronic arthritis of the synovial or mixed types" (Fisher) is a frankly inflammatory process, whereas the proliferative changes in the so-called "osteo-arthritis" belong to the peculiar type of proliferation akin to new growth that we are considering. It is interesting to note also that the age incidence of osteo-arthritis or chronic arthritis of the chondro-osseous type is, as a general rule, very similar to that of many forms of malignant change, particularly the carcinomatous—that is, they both occur when the resistance of the body to irritation of *moderate* degree of intensity is beginning to diminish because the patient has passed the meridian of life. In younger organisms the vascular response to irritation of slight or moderate intensity is marked, and, combined with a moderate degree of cellular proliferation, probably suffices to cope with minor degrees of irritation.

After the meridian of life is past the vascular reaction is not so much in evidence, and a slight but persistent form of irritation tends to bring about a proliferation of cells that are fairly well nourished but degeneration of cells whose nourishment is poor. A good example of this is seen in "osteo-arthritis." The physiological basis for the changes in the latter is that while the central part of the articular cartilage which is devoid of blood vessels is poorly nourished, the extreme lateral portions receive blood vessels from the circulus articuli vasculosus. Irritation, therefore, whether mechanical or toxic, tends to cause degeneration of the central portion of the articular area and proliferation of the lateral portions. We observe this same peculiar admixture of proliferation and degeneration in many forms of true neoplasm, both innocent and malignant. It appears that in new growths we are faced with an essential alteration. There is a breaking down of the physiological harmony between cells and the inhibiting intercellular substance. We can imagine, for example, that prolonged irritation or toxaemia might have, simultaneously, a stimulating effect upon cells but an inhibiting effect upon intercellular substance. On the other hand, inhibition might be at a very low ebb from the degeneration of old age, and might, in a person with suitable disposition, cause a growth to develop. If inhibition is temporarily abolished but eventually recovers, a so-called innocent new growth may result, which after a time ceases to develop actively. If inhibition is impaired a subinflammatory process such as osteo-arthritis develops (compare prostatic adenomata). If it is severely impaired and the irritation is moderate, or if it is slightly impaired and the irritation great, or if irritation is great and inhibition severely impaired, a malignant growth results.

As according to this theory the condition known as "osteo-arthritis" is a stage intermediate between inflammation and new growth, it seemed to me that it might be of considerable interest to ascertain whether it would be

* The expenses of this research were defrayed by the Medical Research Council.

possible to bring about osteo-arthritis and new growth experimentally through the same agency, and for this object tubes containing radium were introduced into the knee-joints of rabbits. The following experiments show the results obtained.

A. *Experiments with Radium contained in Glass Tubes.*

Fig. 1 represents the left knee-joint of a full-grown rabbit, and shows well marked proliferation of the cartilage of the inner and upper margin of the trochlear surface of the femur.

Experiment 20 (*Old Series*).—The left knee-joint of a rabbit was opened by an incision upon the internal aspect and under strict aseptic precautions. A glass tube containing 0.0382 mg. of radium bromide was fixed by a catgut suture against the inner margin of the trochlear surface, and the joint carefully closed by suture. The joint was immobilized as far as possible by several layers of gauze saturated with collodion. A glass tube containing 0.15 mg. radium bromide was fixed in a similar position in the right knee-joint. The rabbit remained perfectly healthy, and nineteen weeks later was killed. The left knee-joint revealed the presence of a large chondro-osteophyte similar to those seen in osteo-arthritis (Fig. 1). It had developed from that portion of the articular edge opposite to where lay the radium tube, which had formed for itself an oblong shallow pit in the adjacent part of the internal femoral condyle. The remainder of the joint showed no obvious change beyond localized synovial hypertrophy in the vicinity of the radium tube. The right knee-joint showed similar changes, but to a lesser degree.

Experiment 19 (*Old Series*).—The left knee-joint of a rabbit was opened as above, and a glass tube containing 0.15 mg. of radium bromide was fixed against the inner border of the internal condyle of the femur. The animal was killed four weeks later, and it was noted that well marked proliferation of the lateral part of the cartilage had occurred at the junction of the internal condyle with the trochlear surface of the femur. A patch of fibrillation of the cartilage had occurred more centrally. Localized synovial hypertrophy was again present.

Experiment 6 (*New Series*).—A glass tube containing 0.15 mg. of radium bromide was introduced into a similar position in the right knee-joint of a rabbit. Two weeks later the animal died, and it was noted that no alteration in bone and cartilage had occurred, but that a localized villous synovitis was present in the immediate vicinity of the tube.

Experiment 5 (*Old Series*).—A glass tube containing 0.15 mg. of radium bromide was introduced into the suprapatellar pouch of the right knee-joint of a rabbit. Fourteen months later the animal was killed. The radium tube had created for itself a deep pit above the trochlear surface. Slight osteo-arthritic changes were present. An interesting feature was the fact that the patella had become dislocated, and lay upon the outer side of the femoral condyle. Here an articular surface had developed for the patella with a covering of newly formed articular cartilage (Fig. 4).

B. *Experiments with Radium contained in Platinum Tubes.*

Experiment 2 (*New Series*).—The left knee-joint of a rabbit was opened from the inner side under scrupulous aseptic technique, and three platinum tubes containing radium were introduced as follows:

Platinum tube No. 151, containing 1.2 mg., into the outer part of the suprapatellar pouch.
Platinum tube No. 152, containing 0.50 mg., into the inner part of the suprapatellar pouch.
Platinum tube No. 153, containing 0.51 mg., into the lower and anterior part of the joint. Total 2.21 mg.

After an interval of several weeks the animal developed acute destructive suppurative arthritis of a fulminating type, which necessitated its destruction. It is highly improbable that the infection was introduced at the time of the operation owing to the interval that elapsed.

Experiment 1 (*New Series*).—The left knee-joint of a rabbit was opened from the inner aspect, and platinum tube No. 150, containing 2.44 mg. of radium, was introduced into the joint. The animal was killed eleven months later, and the following conditions were observed (Fig. 2). A condition of chronic arthritis of mixed type or "rheumatoid arthritis" had developed. The radium tube lay in front of the crucial ligaments. The articular ends of both tibia and femur were considerably enlarged from inflammatory thickening of the periosteum. Considerable destruction of the articular surfaces of both femur and tibia had occurred, associated with the formation of chondro-osteophytes at the articular margins. This formation of new bone was particularly well marked from the antero-internal part of the internal tibial condyle, where a very large osteophyte had developed (see drawing). Adhesive ankylosis occurred in places between the adjacent surfaces of the femur and tibia. The synovial membrane was inflamed, and in places invaded the articular surface in the form of pannus.

Experiment 4 (*New Series*).—The left knee-joint of a rabbit was opened from the inner side. Two platinum tubes, one containing 0.22 mg. and the second 0.24 mg. of radium bromide, were introduced into the joint cavity (suprapatellar pouch). The animal was killed fourteen months later, and the following interesting conditions were observed (Fig. 3).

The joint was enormously enlarged, partly from a fluid swelling occupying the inner part of the joint and partly from a hard tumour-like mass growing from the lower end of the femur and projecting backwards into the popliteal space, but also inwards. On carefully opening the joint it was seen that the fluid swelling on the inner side was an abscess cavity, containing thick, curdy, purulent fluid, and in which the radium tubes lay. Internally the cavity had a dense fibrous wall, whereas externally the wall of the abscess cavity was formed by the enlarged lower end of the femur. In sagittal section the shape, size, and general relations of the tumour are demonstrated clearly. It is seen to be developing principally from the inner and posterior aspects of the lower end of the femur; to be of a somewhat dense and compact consistency, and to be covered externally by a tough periosteal envelope. Histologically the tumour is clearly an ossifying periosteal sarcoma which has originated from the periosteum covering the intra-articular portion of the diaphysis and the adjacent portion of the epiphysis of the internal femoral condyle.

I am indebted to Professor H. M. Turnbull, Director of the Pathological Institute, London Hospital, for the following report upon the tumour:

The peripheral portions of the mass for a considerable depth consist of a very cellular tissue that is invading and destroying muscle. The cells are spindle-shaped, triangular, polygonal, and spherical, vary greatly in size, but are for the most part large. Deeper in the mass very numerous swollen collagenous fibres appear among the cells, and gradually enlarge to form a close irregular meshwork of very narrow osteoid trabeculae. As still deeper layers are followed the trabeculae become gradually stouter, and enclose larger medullary spaces, in which lie essentially similar, usually degenerated, cells; these trabeculae are of coarse-fibred bone, are for the most part necrosed, and are arranged very irregularly. In the section from the maximal convexity of the mass some large medullated nerves are included in this tissue, and the adventitia of an artery is replaced by the polymorphic cells. The femur as it touches the mass is cut tangentially; the mass replaces the periosteum, but the corticalis is neither necrosed nor interrupted. The medulla of this portion of femur is, however, filled with a close meshwork of trabeculae of necrosed coarse-fibred bone, with some superimposed finely fibrillated bone or osteoid tissue; the medullary spaces contain the polymorphic cells, and these cells show extensive degeneration and necrosis. Similar cells fill some of the inner Haversian spaces and canals of the corticalis.

There are a considerable number of leucocytes within the mass and in places close to it; there are leucocytic thrombi in some large vessels near the mass, and there is much perivascular infiltration with plasma cells in the muscle at a distance from the mass.

The conditions to be separated for a diagnosis are: (1) inflammation leading to bone formation, (2) callus formation following trauma, and (3) neoplasm. The features which I have tried to sketch in the description, particularly the wide peripheral zone of destructive cellular infiltration, make, I think, the diagnosis of osteo-sarcoma undoubted. There is some inflammatory infiltration in the mass and in the tissue beyond the mass, but this infiltration is relatively insignificant, and is such as is frequently found in association with malignant neoplasms. The sections alone do not suffice to settle the origin of the growth, but, taken in conjunction with your pictures, there can be little doubt that the sarcoma arose in the periosteum of the femur, and had invaded the medulla nearer the centre of the mass than the site of the section that includes femur.

I conclude that the condition is an osteo-sarcoma of the periosteum of the lower end of the femur.

It is not claimed that these experiments are anything more than suggestive, and it is obvious that confirmatory evidence will be necessary. The first fact that demands our notice is that, in the series of experiments with small quantities of radium contained in glass tubes, the reaction of the joint elements was slight or moderate and took the form of proliferation of the better nourished edges of the articular cartilage or synovial hypertrophy in the vicinity of the tube. The experiments were conducted under rigid aseptic technique, and suppuration did not occur. The localized proliferations at the edges of the articular

A. G. TIMBRELL FISHER: ARTHRITIS AND NEOPLASM PRODUCED BY RADIUM.

FIG. 1.—Left knee joint of rabbit. Tube containing 0.0382 mg. of radium fixed in contact with inner margin of condyle. Growth of cartilage after nineteen weeks. (Experiment 20, old series.)

Right knee.

Left knee.

FIG. 2.—Rabbit A. 2.44 mg. of radium bromide were introduced into the left knee-joint. Animal died eleven months later. A subacute arthritis is present with a mixture of degeneration and marked bony hypertrophy. The articular ends are greatly enlarged, and below and internal a large detached osteophyte is present. Associated with the degeneration of the central poorly nourished portion of the articular cartilage is definite proliferation of the better nourished lateral portion. (Experiment 1, new series.)

FIG. 4.—Osteo-arthritic changes in knee-joint of rabbit. (Experiment 5, old series.)

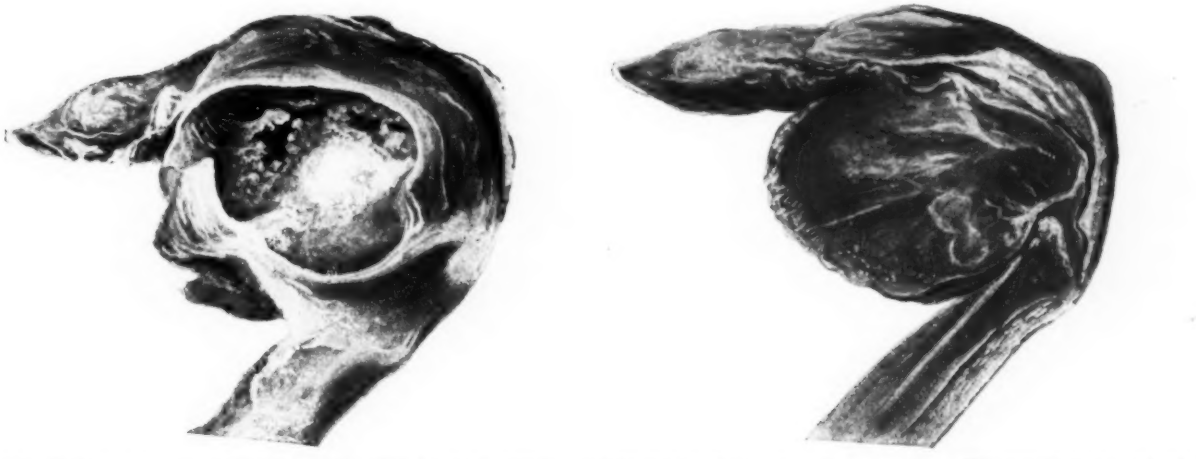

FIG. 3.—Periosteal sarcoma growing from the lower end of the femur. Sagittal section of knee-joint (natural size). (Experiment 4, new series.)

M. R. DRENNAN: THE AURICULO-VENTRICULAR BUNDLE IN THE BIRD'S HEART.

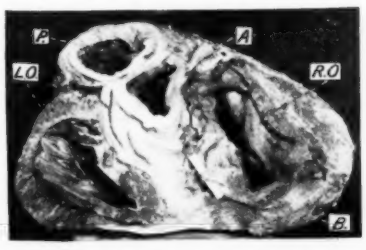

FIG. A.—Photograph of the A-V bundle, between the auriculo-ventricular openings (ostrich heart). P.=Pulmonary artery. A.=Aorta. R.O.=Right auriculo-ventricular orifice. B.=Bundle. L.O.=Left auriculo-ventricular orifice.

FIG. B.—Photograph of the right side of the dissected ostrich heart, showing the A-V bundle.

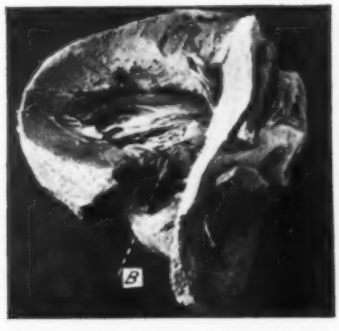

FIG. C.—Photograph of the left side of the dissected ostrich heart, showing the termination of the left branch of the A-V bundle in a complex network under the endocardium.

FIG. 1.—Showing two posterior grafts six months after implantation as thin osteo-periosteal shavings.

FIG. 2.—Showing consolidation of grafts one year after operation, and after using foot for six months. Note commencing equinus deformity due to faulty implantation of grafts and unequal growth at lower end of tibia.

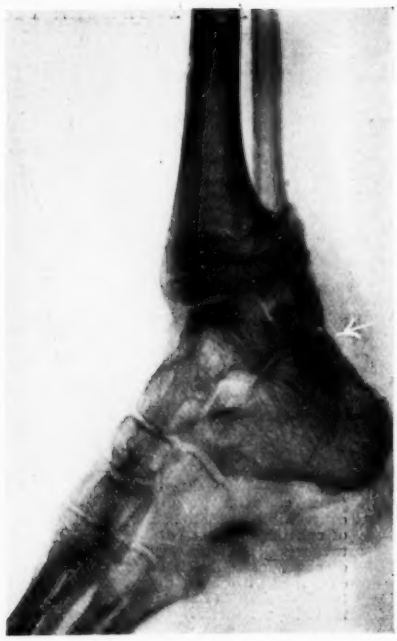

FIG. 3.—Taken two months later, showing fracture of graft and further equinus deformity in tibia.

BERNARD HUDSON: A CASE OF ARTIFICIAL PNEUMOTHORAX.

FIG. 1.

FIG. 2.

FIG. 3.

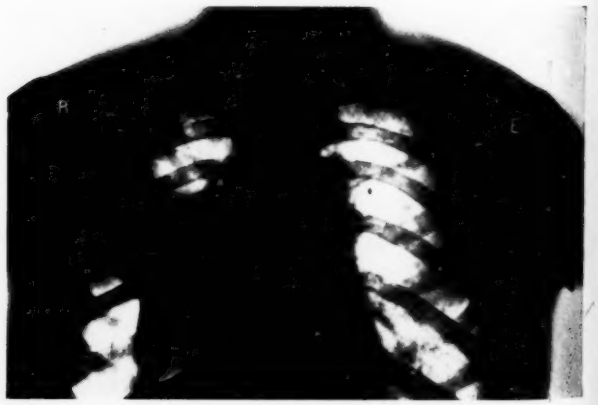

FIG. 4.

cartilage were similar to those seen in osteo-arthritis, particularly in the more localized "traumatic" forms.

In the second series of experiments, with larger quantities of radium contained in platinum tubes, a striking fact was the severity of the reaction. Although scrupulous aseptic technique was used, suppuration occurred in a large proportion of cases. It is probable that the suppuration was not introduced at the time of the operation, but was due to auto-infection, for it is known that bacteria settle in damaged tissues.

In Experiment 2 (new series) the total quantity of radium in the three platinum tubes introduced into the left knee-joint of the rabbit was 2.21 mg., and acute destructive arthritis of fulminating type supervened.

In Experiment 1 (new series) one tube containing 2.44 mg. of radium was inserted into the joint, and at the end of eleven months a marked degree of chronic arthritis or "rheumatoid arthritis," with a combination of destruction and hypertrophy, was found.

In Experiment 4 (new series) two platinum tubes containing a total quantity of 0.46 mg. of radium were inserted. At the end of fourteen months a localized abscess was found combined with a large sarcomatous growth.

We have already noted that in the experiments with radium contained in glass tubes changes akin to localized osteo-arthritis accrued. In the three experiments with radium in platinum tubes the results may be summarized as follows:

Experiment 2: Acute suppurative arthritis.
Experiment 1: Subacute arthritis of mixed type similar to "rheumatoid arthritis."
Experiment 4: Localized abscess and sarcoma.

It would be rash to form conclusions from a small series of experiments, but it would appear that the smaller quantities of radium contained in the glass tubes caused proliferative changes only. The larger quantities of radium contained in the platinum tubes caused destructive changes, whereas the smaller quantity in Experiment 4 caused the marked and irregular proliferation of a malignant growth. The resistance of the animal and the time factor are, of course, important.

THE AURICULO-VENTRICULAR BUNDLE IN THE BIRD'S HEART.

(*With Special Plate.*)

BY

M. R. DRENNAN, M.A., M.B., F.R.C.S.E.

(From the Anatomy Department of the University of Capetown.)

In fishes, amphibia, and reptiles the muscular wall of the auricles of the heart is continuous with that of the ventricles. In mammals the muscular continuity is almost completely interrupted by the fibrous auriculo-ventricular rings. The very attenuated auriculo-ventricular bundle (bundle of His) is the only direct neuro-muscular connexion between the auricles and the ventricles. The existence of this structure, in a more or less definite form, has now been demonstrated in the whole mammalian group.

In the heart of the bird, however, the presence of the bundle of His has not, so far as I am aware, been established. Keith and Flack (1907), in an important paper dealing with the "Muscular connexions of the primary divisions of the vertebrate heart,"[1] seemed to have no doubt that there was an auriculo-ventricular bundle in the birds' hearts which they examined. On the other hand, Mackenzie and Robertson (1910), in a paper dealing with "Recent researches on the anatomy of the bird's heart,"[2] state emphatically that "in the bird's heart there is no bundle of His, or other specialized form of muscle tissue connecting the auricles with the ventricles." These same authors state that "Tawara's monograph leaves the impression that the bird's heart resembles the mammalian heart in the possession of a special muscle system. He refers to fibres of the Purkinje type in the region of the blood vessels (of the bird's heart)." Dr. Alexander Morison (1912), in his paper "On the innervation of the sino-auricular node,"[3] states in his argument that in birds "most investigators have failed to find the auriculo-ventricular bundle; not that this fact proves its absence."

The presence or absence of this structure in the bird's heart would seem, therefore, to be "not proven." Yet it seems to me that it is very important that an attempt should be made to decide this question. If the bird's heart can dispense with a bundle of His, it suggests that the physiological importance of the bundle is perhaps being overrated in the mammal. On the other hand, if the bundle can be proved to be present, it brings this heart and its contractile phenomena more into line with that of the mammal, and adds to the significance of this structure in cardiology.

Most workers hitherto have relied on the findings from a microscopical investigation of the hearts of small birds, but it would appear that such an examination is unsatisfactory from the fact that the bundle fibres, if they exist, appear to be little differentiated from the ordinary heart muscle. Keith and Flack[1] state that in birds they "have been unable to find any differentiation of fibres in the bundle; the guide to it being its position and its definite demarcation by fibrous tissue. In the birds' hearts examined (sparrows and goldfinch) the A-V bundle arises from the auricular ring and dives at once into the interventricular septum."

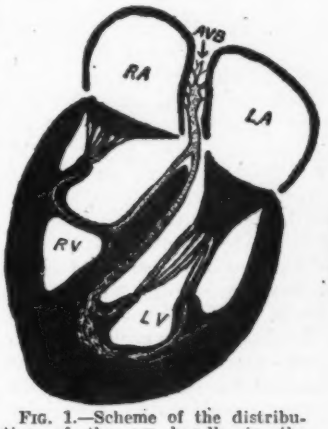

FIG. 1.—Scheme of the distribution of the A-V bundle in the human heart.

FIG. 2.—Scheme of the distribution of the A-V bundle in the ostrich's heart.

I have recently dissected five ostrich hearts with a view to determining whether any trace of a bundle could be detected with the naked eye. The size of these hearts—they are as big as a small ox heart—gave promise that, if there was a bundle, it would be of tangible size. In all of these hearts I have been able to demonstrate a structure which is probably homologous and analogous to the auriculo-ventricular bundle in the mammal.

This structure is not so easily defined as the auriculo-ventricular bundle in the ox, but it is nevertheless as definite as the auriculo-ventricular bundles which I have been able to trace out in the human heart. It arises in the same region as the mammalian bundle, but there is no sign of any definite auriculo-ventricular node at its commencement. In several of the hearts, however, I was able to make out a rich nerve supply to this region from the right coronary plexus. At its commencement this structure is pale and delicate, varying in thickness in the different hearts examined. It is best made out by approaching it from behind, by separating the right and left atrial walls in the region of the interauricular septum (see Plate, Fig. A). It passes through the medial aspect of the right auriculo-ventricular fibrous ring, just under the endocardium, to which it is adherent. As soon as it reaches the interventricular septum it plunges deeply into its substance (see Plate, Fig. B), and runs obliquely towards the left side of the septum. Here, on the septal wall of the left ventricle, it divides at once into a large number of branches, which form a network just under the endocardium (see Plate, Fig. C). The distribution of this part of the avian bundle is very similar to that of the left branch of the mammalian bundle.

In the ostrich heart there is no branch of this bundle tissue having a distribution similar to that of the right

branch of the mammalian bundle—namely, running down the right side of the interventricular septum to the moderator band, etc. (see Fig. 1). There is a branch, however, which is analogous to this one, but it takes a very different course. As the avian bundle passes through the interventricular septum it gives off a branch, which runs in a curved direction to the left, then upwards and to the right, to end in that wonderful single muscle valve which in the bird's heart takes the place of the mammalian tricuspid (see Fig. 2). This avian muscle valve consists of a wedge-shaped mass of muscle, which extends from the upper limit of the right auriculo-ventricular opening to its lower part. It is situated on the lateral aspect of the opening, and it becomes closely applied to the septum when the right ventricle is in systole. It has no chordae tendineae nor musculi papillares. This marked difference in the arrangement of the right auriculo-ventricular valve in the bird, as compared with the mammalian tricuspid, accounts for the very different course taken by the right branch of the bundles in the two hearts. On the other hand, the similarity between the avian and the mammalian mitral valves, and the almost identical distribution of the left branches of avian and mammalian bundles, has its significance. From the above considerations it looks as if the avian and the mammalian bundles have a similar function.

The general naked-eye characters of the auriculo-ventricular bundle vary very much in different mammals, and even in different individuals of the same species. In the ox heart the bundle is relatively thick, smooth, and rounded, and more like muscle tissue than the human bundle, which is thin, ragged, and pale, like a fine nerve fibre. In the ostrich heart the bundle is more like glistening fibrous tissue. This shiny appearance is more marked on the left side of the bundle than on the right, and on this aspect the bundle is easily separated from the heart muscle. Elsewhere the bundle is adherent to the muscle fibres, and it presents a ragged appearance when dissected out. Within the septum the bundle tissue gives off several fine white branches to the heart muscle in addition to the curious right branch already described. The individual variations of the several bundles dissected out in the five ostrich hearts are very considerable, especially as regards size and definition of the bundle system.

CONCLUSION.

The ostrich heart presents a system of fibres which is somewhat similar to the auriculo-ventricular bundle of the mammalian heart. The distribution of this system is such as to indicate that it has a similar function to the bundle of His—in short, that it constitutes a true avian auriculo-ventricular bundle.

REFERENCES.

[1] *Journ. Anat. and Physiol.*, vol. xli, 1907. [2] BRITISH MEDICAL JOURNAL, 1910, vol. ii, pp. 1161-1164. [3] *Journ. Anat. and Physiol.*, vol. xlvi, 1912.

THE OSTEO-PERIOSTEAL GRAFT IN DANGLE-FOOT.

(With Special Plate.)

BY

JOHN GILMOUR, M.S., F.R.C.S.,

HONORARY ASSISTANT SURGEON, ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE; ORTHOPAEDIC SURGEON, W. J. SANDERSON HOME FOR CRIPPLED CHILDREN, GOSFORTH.

IN *Surgery, Gynecology and Obstetrics* for February, 1926, Professor Rutherford Morison and Dr. William Mackenzie describe an "operation for dangle-foot" in which they use osteo-periosteal grafts to stabilize the ankle-joint. These grafts are taken from the patient's tibia, and are implanted to form osseous ligaments between the tibia and fibula above, and the astragalus and os calcis below. Two procedures are described:

(1) *Posterior grafts*—extending from the back of the tibial and fibular epiphyses to the sides of the os calcis below.

(2) *Lateral grafts*—stretching from the outer aspects of the malleoli above to the peroneal area of the os calcis externally, and to the inner aspect of the astragalus and os calcis below.

During the last year I have been associated with the authors at the W. J. Sanderson Home for Crippled Children at Gosforth, and I have had repeated opportunities of examining the efficacy of these procedures in fixing the ankle and subastragaloid joints, and of extending the principle in other directions. Time has shown that uniformly good stabilization is secured, and evidence is accumulating to demonstrate the superior value of the method.

In a number of cases of flail-foot astragalectomy had been performed to produce fixation, but the results were generally disappointing. It was found that there was a marked tendency for the foot to become fixed in a varus position, due partly to the over-development of the os calcis externally, partly to the irregular development of fragments of cartilaginous bone in place of the astragalus, and partly to the natural shortening of the longitudinal arch of the foot on the inner side after astragalectomy.

Other operations in which bone is removed to shorten the tarsus, and to arthrodese the astragaloid joints, are apt to leave the patient with feet that are unequal in size, and to present to him the ever-recurring problem of getting boots for feet which are not neighbours.

The paralytic foot is already often smaller than its fellow, and its bony tissue is thin and largely decalcified. For this reason alone it would seem to be better to fix such a foot by introducing bone, which may at the same time exert an osteogenic stimulus, than by removing it.

The illustrations show how remarkable is the growth of bone from the thin osteo-periosteal shavings which were used as grafts in these cases. The purpose of this communication, however, is to draw attention in this operation to the importance of accuracy in the process of embedding the grafts, and to illustrate the interesting though undesirable results which occurred in one case where the graft extended beyond the tibial epiphysis and gained an attachment over the epiphyseal cartilage to the diaphysis.

The case is that of a boy, aged 14 years, who had a paralytic dangle-foot on the left side. For this disability two posterior osteo-periosteal grafts were implanted on January 19th, 1925. Radiographic examination showed the grafts in position but reaching up over the epiphyseal "line." After fixation for six months the plaster-of-Paris casing was removed and the foot was again radiographed. Fig. 1 shows the two posterior grafts behind the ankle and subastragaloid joints. Their upper limits appear as bony shadows beyond the tibial and fibular epiphyses, the lower ends are seen to be blending with the bony texture of the os calcis. It is important to notice that the long axis of the tibial shaft is at right angles with the plane of the "epiphyseal" cartilage.

The boy was now (July 1st, 1925) permitted to walk about on this foot with no other support than the grafts. Fig. 2 is a radiogram taken six months later (December 9th). It shows how the grafts have become consolidated, and how the bones have increased in density. The upward extension of the grafts beyond the epiphysis is clear. Clinically, there was good fixation at the ankle, but a mild degree of equinus deformity. The radiogram shows this distinctly: the shaft of the tibia no longer makes a right angle with the plane of the epiphyseal cartilage, but is inclined backwards from it in a manner which is comparable to the inward deviation of the femoral shaft to its lower epiphysis in cases of genu valgum. This can only be due to the freer growth of bone at the front of the tibial epiphyseal cartilage, the posterior region having been fixed down, as it were, by the binding pressure of the grafts.

The ultimate result in this case would naturally be spoilt by the further development of this bony deformity causing a fixed equinus. Indeed, it is possible that the amount of equinus already present was enough to cause this boy to jar his foot and fracture one of the grafts two months later. Attention was called to the fact by his complaint of pain at the back of the ankle, and the third radiogram (Fig. 3) shows this condition (February 11th, 1926).

The presence of pain and the fracture in the graft are recorded as interesting features of this case, since radiographic examination of other cases occasionally shows clear areas in the graft without there being any history of pain in the neighbourhood. It is not yet certain that these areas of rarefaction are fractures; they may be, but it is fortunately true that their appearance has not interfered with the clinical results. The radiogram shows very clearly the increasing tibial deformity. Professor Morison's instruction that the grafts should extend up to but not over the

epiphyseal line is seen to be of primary importance. They are to be used as osseous ligaments, and should retain sites of implantation corresponding with ligamentous attachments. In the neighbourhood of growing epiphyses due regard must be paid to the laws of growth. This case may therefore be looked upon as an instance of the extraneous fixation of the epiphysis to the diaphysis (by a graft), which the late Sir William Macewen showed would interfere with or prevent normal linear growth.

A CASE OF ARTIFICIAL PNEUMOTHORAX.

(With Special Plate.)

BY

BERNARD HUDSON, M.D.CANTAB., M.R.C.P.,

SWISS FEDERAL DIPLOMA; MEDICAL SUPERINTENDENT, VICTORIA SANATORIUM, DAVOS-PLATZ, SWITZERLAND.

A MAN, aged 26, was under treatment for eighteen months (1922-23) for pulmonary tuberculosis affecting the upper lobe of the right lung. Recovery was excellent, and, by the sanction and advice of his doctors, he went to Kenya Colony in September, 1924, and invested in a farm there. The place suited him, and all went well until some months ago, when he became very ill, apparently (as far as can be made out from the history) with an acute exacerbation, which spread rapidly through the right lung, but chiefly affected the base. He saw a doctor, who advised him to get away as quickly as possible, and go straight to Davos-Platz. He arrived here under my care on February 22nd, 1926. He was exceedingly ill on arrival, the daily temperature varying from about 99° in the morning to 102° and over at 7 p.m. (taken by the mouth). He had a racking cough, and was bringing up a large quantity of sputum loaded with tubercle bacilli; he had lost about 2 st. in weight, and was looking a typical picture of what is known as "galloping consumption."

On examination the whole of the right lung was dull, and the lower half absolutely so; the whole lung was full of moist râles, and at the base there was loud bronchial breathing, increased vocal resonance, and increased vocal vibrations. Some moist crackling râles were heard in the upper lobe of the left lung, and the disease apparently had well started in this lung.

The radiographic appearance (Fig. 1) showed extensive trouble in the right lung, cavitation at the apex, and a dense black shadow in the lower part. It will be seen that the heart is drawn well over to the right side; the left lung shows commencing tubercle in the upper lobe. The appearance of this radiograph made me consider the possibility of an effusion at the right base, and I accordingly explored with a large-bore needle, but got nothing out. As the patient was obviously going downhill, and showed no signs of any improvement, I thought it worth while to see if it would be possible to establish an artificial pneumothorax on the right side, although there seemed very little hope of being able to do so, because of the probable presence of strong adhesions. However, on March 13th an attempt was made, and, to my great astonishment, a free space was found at once, the manometer swinging well, showing a strong negative pressure; 150 c.cm. of air only was introduced and a small initial pocket made. This amount of air sufficed to raise the pressure from a negative one to a strongly positive one, the pressures being as follows:

Induction	...	...	−2	−6	...	150 c.cm.	...	+2 −4
March 16th	...	...	−2	−6	...	200 c.cm.	...	0 +3
March 21st	...	...	−2	−7	...	300 c.cm.	...	+1 −4

A radiograph taken shortly afterwards showed the production of a small pocket (Fig. 2). Two more insufflations were made, the results being as follows:

March 31st	...	...	−2	−7	...	300 c.cm.	...	0 −3
April 10th	...	...	−3	−8	...	500 c.cm.	...	0 −1,5

The fillings were continued at intervals of a fortnight, about 600 c.cm. being introduced each time, and the radiograms (Figs. 3 and 4) show the development of a fair-sized artificial pneumothorax in the lower part of the right lung, many adhesions having given way, but leaving two or three powerful bands, which are very plainly seen in the illustrations.

An interesting point is that after the third insufflation the patient remarked that he felt his heart once more beating on the left side instead of on the right. On inspection of Figs. 3 and 4 it will be seen that the heart, which was formerly drawn over to the right side by adhesions, has returned to its proper position on the left.

July, 1926.—The pneumothorax, although only a partial one, caused an undoubted and pronounced improvement in the patient's condition. The cough and expectoration have very much diminished, the pulse rate, instead of being 120 to 130, is now running at about 80, the breathing is easier and quicter, and the temperature has come down. The patient is now getting up for a short period each day without any ill effects. The signs in the left lung are diminishing in extent and intensity.

February 1st, 1927.—The further progress of this case is as follows: The patient kept very well all through the summer, and was able to take moderate exercise, the temperature being always quite normal, and the cough and the sputum diminished. The general condition improved considerably, and he gained weight. Fillings were continued every three weeks, the pneumothorax cavity gradually increasing in size, and the adhesions thinning and stretching. On January 17th the patient's temperature began to rise again, and he developed pain on the side of the pneumothorax; this was shortly followed by the appearance of a small serous effusion, which is following the ordinary course of such effusions; and the patient is already improving daily. Incidentally it is of interest to note that with the establishment of this effusion the adhesions have given way, the pneumothorax now being nearly "complete"; the other lung is holding up in a very satisfactory manner.

I am indebted to Mr. P. G. Sutton, M.S.R., of the *X*-Ray Institute, Davos-Platz, for the radiographs.

PARAPLEGIA (MEGALOCYTIC) CURED BY HYDROCHLORIC ACID.

BY

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DIAGNOSIS in the following case was possible by measuring the average diameter of the red cells, and by that alone. Haematology, and all its complexities, gave no light. How forcibly this illustrates my favourite doctrine that simple recorded measurements in clinical medicine are richly rewarded, yet greatly neglected.

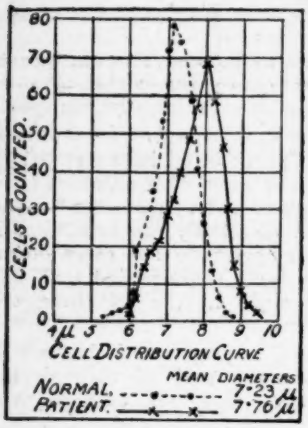
A florid, healthy, active young man of 37, a cargo superintendent, decent and clean living—noticed tingling in both legs up to the groins in January, 1925; later his hands tingled, he was drowsy, and had sacral pains, worse on walking. Next his ankles gave way, micturition became difficult, and the pavement felt like cotton-wool.

He was much worried sexually at this time by the exactions of his second wife, to whom he had been married a few months. In July he could no longer walk, and in August I saw him in consultation with Drs. Eddie and Robertson. I diagnosed posterior combined sclerosis, and he was admitted into the Royal Infirmary under my care. There he lay on the balcony for five months, and then went to the seaside under Dr. Sproulle. The plantar reflexes were extensor, knee-jerks absent, and he could not move his feet. Hydrochloric acid was not present in the test-meal secretions, and *x* rays were suggestive at first of pyloric new growth, but became normal after belladonna. Haemoglobin was 75 per cent., and the pathologist reported more than once that there was no evidence of pernicious anaemia. As he had had sore tongue before admission I still felt incredulous.

In view of the recent illuminating work of Dr. A. F. Hurst on this subject I ventured to send him a blood film and an outline of the case. At his instance, Dr. Hampson kindly carried out the measurements of

the red cells shown in the curve. Dr. Hurst wrote (February 18th, 1926):

"The average size of the red cells is increased, so that there is the megalocytosis which is characteristic of Addison's anaemia. We find not infrequently that in the early stages this is the only evidence of Addison's anaemia—a general examination pointing to quite normal blood or slight anaemia of a secondary type, but I believe the megalocytosis is conclusive evidence."



Presumably the interpretation of the case is that, owing to the absence of hydrochloric acid, his intestines became infected with some germ which is capable either of producing the haemolysis of pernicious anaemia or of causing the degenerative changes in the spinal cord. Probably the sexual exhaustion was a factor in deciding the incidence on the spinal cord; for doubtless our medical forebears had good reasons for attributing tabes to sexual excess before its syphilitic nature had been ascertained.

Treatment.

He had four teeth extracted, and massage. He drank half a pint of hydrochloric acid three times a day after food, and must continue to do so all his life, as the deficiency is doubtless congenital. Its strength is 5 drachms of dilute hydrochloric acid to the pint of sweetened water. He had twenty-four hours' fresh air every day for four months; besides sunshine, he had two hours a week of ultra-violet rays from three carbon arc lamps running at 30 per cent. over pressure, according to my system.[1] To the latter he himself largely attributed his cure. I find that they nearly always make a medical patient feel better—which is half the battle won. Hence they are a very useful addition to a general medical ward.

After a month or so in hospital he gradually improved, and walked after fifteen months' illness. His gait is now brisk, with only a hint of spasticity. He looks well, can run, and has been at work for three months clambering about ships. His legs and finger-tips still tingle. Haemoglobin is 100 per cent., sensation is normal, and the knee-jerks have returned, but the extensor plantar reflex persists.

"When once these cases are bedridden improvement is unusual"; so that his recovery is remarkable, and is due, I think, to the hydrochloric acid. Hitherto a case of this kind would be foredoomed to Addison's anaemia. It will be interesting to see if the hydrochloric acid habit will save him from this fate—of which he has been warned.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, October 3rd, 1925, p. 613.

HABIT FORMATION IN THE BLOOD VESSELS OF THE SKIN.

BY

P. B. MUMFORD, M.D., M.R.C.P.

SUPERFICIAL blood vessels appear to possess a property of retaining for a variable period an altered sensibility to stimuli, whether internal, external, chemical, thermal, mechanical, or nervous. A vessel by the constant use of its power of contraction or dilatation may acquire the habit of so responding to the same degree when the stimulus is lessened or when another form of stimulus is supplied. Hypersensitivity may remain in a skin vessel for a considerable period after the application of the original stimuli. Certain phenomena demonstrate these peculiar properties, but in mentioning them it should be realized that the alteration of reaction is not always specific and that there may be an altered response to other forms of stimuli.

A. *Mechanical Stimulation.*—When an area of skin is subjected to a pressure of about 2 lb. by stroking with a round bobbin of wood the vascular changes, active and passive, which follow will disappear within a few minutes. If the skin be now immersed in hot water it will be found that the line of the stroke reappears as an area of more marked erythema than the surrounding skin. The line represents an area of hypersensitivity. The line shows also a much slower return to normal.

B. *Thermal Stimulation.*—Prolonged exposure of the skin to heat will often leave vessels very responsive to stimulation. A stoker who had been accustomed to wear a singlet which covered the lower chest and abdomen showed a very marked response to dry and moist heat; the response was especially deep over the exposed areas. Similar excessive vascular dilatation is to be found in many other persons who make a continual demand on the skin for heat excretion power. Hyperthyroidic individuals flush up very freely in heat. One of the "excuses" generally given for the morning cold bath is that by exposure of the body to a sudden cold medium the arterioles and capillaries of the skin are taught to react quickly and actively. By the phrase "acclimatization" is meant the adjustment of the superficial blood vessels to changed surroundings and changed metabolic level.

C. *Chemical Stimulation.*—When an area of skin has been chemically irritated there may remain for a considerable period an oversensitiveness of that area even though all trace of lesion has gone.

A woman who had had a severe fur dermatitis on the neck returned in three weeks with severe irritative dermatitis over the same area of skin; apparently it had followed the exposure of the neck to very cold winds. After this had settled down she again had a severe relapse over the original areas due to the use of carbolic soap. In each case the relapse had followed the exposure of the whole face and neck, and yet the only portions of skin affected were those which had been left in a hypersensitive condition by the original fur dermatitis.

D. *Infective Stimulation.*—The skin around areas of mild inflammation (acne follicles, pustules, etc.) shows a more marked response when subjected to mechanical irritation than do the intervening areas. For example, in a case where there had been a bromide eruption the areas where there had been lesions developed an urticarial response when they occurred in the path of a heavy flat stroke stimulus. When the whole body was immersed in warm water the areas of injury stood out as points of deeper erythema. Patients suffering from acne rosacea will often volunteer the information that a heated room causes the sites of disease to reappear after their apparent cure. This apparent manifestation of "habit" cannot altogether be explained as due to the fact that areas of infection are of higher temperature (Lewis), since they are found when all traces of disease have disappeared. The temperature change may, however, explain the development of wheals over patches of acute seborrhoea when the whole skin is rubbed or heated. A simple experiment to show that after the subsidence of infection there is some change in vessels is found in the warming of the skin of a person who has just recovered from impetigo: the areas are shown up as of deeper erythema mapped out on the unaffected skin.

E. *Nervous Stimulation.*—After the complete disappearance of all signs of the eruption of herpes zoster in a young man, areas where lesions had been present were found to remain excessively active in their response to heat stimulation. Urticarial papules may reappear frequently at one point of the body, and the mildest of external or internal stimulation may be sufficient to cause whealing—for example, a mosquito bite on the hand of a middle-aged medical man left such a sensibility for at least eight years; the least provocation, such as temporary ill health or overwork, will cause the lesion to become irritable and raised. Darwin has noticed that blushing will occur in areas which are the subject of constant thought. He quotes the example of a pianist with rather ungainly hands who blushed from the mid-forearm downwards whenever hands were mentioned or even when he thought of them. Blushing can certainly become a vascular habit.

F. *Light Stimulation.*—In Finsen's original experiments on the effect of light on the skin he noted that even after six months' absence from stimulation by light the areas when rubbed showed an increased response to stimulation. This phenomenon is often seen in those who have been sunburnt and who have returned to normal colour. Heat, mechanical, and even emotional stimuli may be sufficient to cause the reappearance of the erythema originally produced by the light.

Conclusion.

It should be realized that continuous dilatation of capillaries and arterioles if persisted in will produce a paralysis of vessel wall, for all contractility to cold and mechanical stimulation has been lost. The acquisition of healthy vascular habit on the part of the blood vessels of the skin which are liable to lose tone or capacity for response is made use of in the alternate hot and cold douching employed in the treatment of pernio. There is an experimental basis for such treatment, and especially so if pernio be regarded as merely an exaggerated physiological response in an unbalanced individual.

The most important conclusion to be drawn from the above remarks is that vessels can acquire a "bad habit." We have a rational basis for regarding relapses in certain forms of skin trouble as being due to a non-specific sensitization. This is of marked legal significance when considering capacity for work of persons who have suffered from "trade" dermatitis.

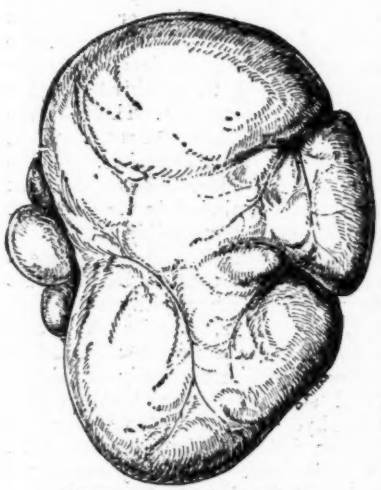
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTERMUSCULAR LIPOMA OF THE CALF.

A LIPOMA may take origin from almost any structure in the body, but an interesting example may yet be sufficient to arrest the attention of readers.

A married lady, aged 41, for eleven years had watched the progressive increase in the circumference of the calf of the right leg; her anxiety increased in direct proportion to the rate of fashionable change in the length of ladies' skirts, though the limb was not rendered unsightly or misshapen; apart from an obvious diffuse enlargement of the calf the contour of the limb remained that of the normal one. The greatest circumference of the affected limb exceeded by six inches that of the opposite.



Lipoma, one-third actual size.

Pain and stiffness on movement were entirely absent. Elevation of the limb did not decrease the swelling, but it hardened with contraction of the calf muscles, indicating that it either involved the muscles themselves or was covered by those structures. There was increased resiliency in the affected calf as compared with the other. *X*-ray examination showed no bone changes, but the outline of the tumour was distinctly seen. With the provisional diagnosis of lipoma, operation was advised.

Through a curved incision on the medial aspect of the calf the gastrocnemius and soleus muscles were displaced laterally and a large lipoma was revealed lying between the superficial and deep groups of muscles; its pedicle arose from the interosseous membrane. The tumour after removal measured 7 by 5 inches and weighed 1¾ lb. It had been moulded, presumably by the tension and action of the muscles, so as to preserve to perfection the normal configuration of the calf.

The patient made an uninterrupted recovery; but the circumference of the affected limb was still one inch more than that of the normal one, due most probably to two factors—oedema and hypertrophy of the muscles.

I have to express my indebtedness to Professor E. W. Hey Groves for permitting me to publish this case.

JOHN J. ROBB, *M.C.*, M.B., F.R.C.S.Ed.,
Assistant to the Professor of Surgery, Bristol University, and Surgical Registrar, Bristol General Hospital.

CARCINOMA OF THE HEART.

I WOULD like to put on record a case of primary squamous-celled carcinoma of the wall of the left ventricle of the heart.

An old woman, aged 77, was admitted to the Tooting Bec Mental Hospital on August 28th, 1925, and died on December 25th, 1926, after suffering for five to seven days from hypostatic pneumonia. She was a typical case of senile dementia and ran a very common course for that condition. The heart was not suspected, but at the *post-mortem* examination a large white tumour, about the size of a hen's egg, was found in the anterior wall of the left ventricle. The whole of the alimentary tract was searched for a primary lesion, and a suspicious piece of lung and of cervix uteri were sent with the tumour to the Metropolitan Asylums Board research and pathological services. The pathologist reported that the heart tumour was a typical squamous-celled carcinoma; the cervix afforded no evidence of any tumour, and the lung presented some bronchopneumonia. To the naked eye the tumour showed some degeneration towards the centre.

London, S.W. THOMAS LINDSAY, M.D., F.R.C.S.Ed.

APPENDICULAR COLIC ASSOCIATED WITH TUBERCULOUS PERITONITIS SIMULATING ACUTE APPENDICITIS.

THE following unusual case seems of sufficient interest to merit publication.

A lad, aged 13, when admitted to the Booth Hall Infirmary, Manchester, had for twenty-four hours complained of severe abdominal pain. The onset was sudden; at first it was over the navel, but later it settled in the right side above the groin. He had vomited several times, and the bowels had not acted for two days. There was no history of a similar attack. He had been coughing for several days. The abdomen was rigid and tender, the tenderness being most marked in the right iliac fossa; McBurney's point was hyperaesthetic. The temperature was 101.2° F., the pulse was 104, regular and full, and the respirations 18. A simple enema was given, and the return contained a trace of faeces; no flatus was passed. Digital examination of the rectum showed considerable tenderness on both sides of the pelvis.

A diagnosis of acute appendicitis was made, and it was decided to operate. Ether was given by Pinson's bomb. A right paramedian incision was made, the rectus muscle being pulled outwards instead of inwards. The peritoneum contained a small quantity of fluid. The appendix appeared to be quite healthy, but the mesentery was studded with tuberculous glands of rather recent origin. I removed the appendix and closed the abdomen. The lumen of the appendix was filled with threadworms.

The patient made an uninterrupted recovery from the operation, but a little later he complained of severe abdominal pain. Masses of enlarged glands were palpable in the abdomen. The temperature was hectic and the bowels costive. He began to vomit after meals, but I came to the conclusion that the pain and vomiting were due mainly to a neurosis. Suggestion was first tried as a cure, with only partial success; but the vomiting ceased entirely, and the pain became much easier after the patient had been shown and told the use of a stomach-tube.

Several months in bed on a balcony facing a large park, together with daily treatment with the tungsten arc lamp, have been beneficial; but the mesenteric glands have greatly decreased and his general condition greatly improved since the exhibition of tuberculin emulsion. He was sent to a sanatorium to complete the cure.

No threadworms were detected in his stools while he was in the infirmary.

GERALD RALSTON, M.R.C.S., L.R.C.P.
Booth Hall Infirmary, Manchester.

MENINGITIS AS A COMPLICATION OF PREGNANCY.

MENINGITIS in pregnancy is said to be rare, but it seems to occur often enough to merit consideration in the differential diagnosis of eclampsia. During the last twelve months I have treated the following cases in the North Evington Infirmary, Leicester; both present points of interest.

CASE I.

Mrs. S., multipara, aged 26, whose previous health had been good, complained of a very severe headache for a week previous to admission, and, on the evening before admission, a commencing left-sided facial palsy was noticed by her doctor.

Examination showed that she was full-time pregnant, but not in labour. The pupils were dilated and the reaction to light was lost. There was slight but definite paresis of the left side of the face and some loss of power in the left arm. No classical signs of meningitis were present. The temperature was 102.6° F., respirations 44, pulse 124. A catheter specimen of urine measuring 18 oz. was acid, high coloured ("febrile"), and contained a faint trace of albumin. On lumbar puncture the cerebro-spinal fluid was seen to be very cloudy, and bacteriological examination showed the presence of the pneumococcus in pure culture.

Five hours after admission the condition was obviously hopeless. Quinine was administered, the os dilated manually, and a live

infant was extracted by high forceps. The mother died five hours later.

At the *post-mortem* examination the surface of the cerebrum was covered by thick, greenish pus. The pleurae, at both apices, were adherent to the chest wall, and the lungs were congested, but there was no consolidation or cavitation.

The infant lived for several weeks, and died of acute enteritis.

CASE II.

Mrs. E., multipara, aged 36, was admitted with a history of otorrhoea of several years' duration. She was seven months advanced in pregnancy. She had enjoyed normal health until five hours before admission, when she had two "fits" and became comatose and delirious. Her family doctor considered she was suffering from eclampsia, while another practitioner diagnosed the case as "mental."

On examination the temperature was 99.6° F., falling to 96° F., respirations 32, pulse 110, irregular. She was restless and noisy. The pupils were unequal and reacted to light; the reflexes unchanged, and marked retraction of the neck developed later on. The urine contained no abnormal constituent, and 41 oz. were passed in two days. There was a discharge from the *right* ear. On lumbar puncture the cerebro-spinal fluid was found to be purulent and was so thick that it could only drop slowly from the needle.

The patient died thirty-six hours after admission. Caesarean section was performed three minutes after death was certain, and a live foetus weighing 4 lb. was extracted.

At the *post-mortem* examination the lower surface of the cerebellum and medulla and pons and the surface of the temporo-sphenoidal lobe and insula were covered by a thick layer of greenish pus. The source of infection was the left middle ear, by way of the tegmen tympani. Part of the temporo-sphenoidal lobe appeared to be eroded, but there were no signs of a definite cerebral abscess. The causal organism was the pneumococcus.

Meningitis in pregnancy is most likely to be confused with eclampsia, which it may greatly resemble. The differential diagnosis is easy; examination of the urine and lumbar puncture clear the matter up. *Post-mortem* Caesarean section is so easy to perform that it needs no description and can hardly be dignified by the term "operation." It should be performed as soon as possible after death is certain. Care is necessary to avoid injury to the foetus, and the operation need not be unduly hurried.

I am indebted to Dr. E. C. Hadley, medical superintendent, for permission to publish these notes.

A. M. MACQUEEN, M.D.Glas.,
Resident Medical Officer, North Evington Infirmary.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

Stillbirths and Neo-natal Mortality.

THE winter meeting of the South Wales and Monmouthshire Branch was held at the Hotel Metropole, Swansea, on January 27th; in the absence of the President, Dr. R. Prichard, Dr. A. CLARKE BEGG occupied the chair.

Dr. T. EVANS, medical officer of health, Swansea, showed a chart of the number of children who died in Swansea each year during the thirty-five years ending 1925, arranged in averages of five years. During the first three periods the mortality rate had remained at approximately the same level, but between 1905 and 1909 this rate began to drop, and had continued to do so since. For the five-year period 1910-14 and afterwards the table was more instructive, as all stillborn infants became notifiable under the Notification of Births Act, 1908, and the death rate for children under one week of age could be included. These figures showed that no reduction had been made in the "stillbirth rate" during this fifteen-year period, and the rate for 1925 was even higher. The same held true for the "death rate under one week." On the other hand, the death rate in infants "over one week and under one year" showed a marked reduction, the 1925 figure (43) being well under half the average (96) for the 1910-14 period. Alongside the official infant mortality rates calculated on the number of living births, he showed what he called a "true infant mortality rate," including amongst the deaths the "dead births," and calculating the rate on both living and dead births combined. The beginning of the reduction of the official infant mortality rate coincided with the time of the appointment of the first superintendent of midwives and health visitor in 1904, and Dr. Evans considered that the education of mothers in infant care had been an important factor in the improvement. A table was shown compiled from inquiries made by the superintendent of midwives of the circumstances associated with 414 full-time, successive stillbirths in the town of Swansea. These circumstances had been classified in accordance with the classification of causes of death in the recent report of the Medical Research Council.

The classification of the causes in the table and the report was not strictly comparable, as in some of the Swansea cases instrumental delivery had been taken as the chief circumstance and they had been included under this heading, whereas they might possibly be more appropriately included under another, such as ante-partum haemorrhage. There was no classification in the Swansea cases under "placental state" as the superintendent of midwives could not make inquiries as to placental conditions. It was shown that 59 per cent. of the full-time stillbirths of Swansea were associated with instrumental delivery. There was a marked contrast between the Swansea figure for the neo-natal deaths under prematurity and that of the Medical Research Council, but this might be partly explained by the higher percentage in the latter report under "complications of labour." In conclusion Dr. Evans quoted an extract from the Medical Research Council's report advocating the practice of preventive midwifery as a means of reducing dead births and neo-natal deaths.

Treatment of Eclampsia in General Practice.

Dr. CELLAN JONES read a paper on the treatment of eclampsia in general practice, some of the observations being based on the result of six months' research work in Vienna. He said that eclampsia was a term used even in the time of Hippocrates, but unfortunately the early writers frequently confused true eclampsia with epilepsy complicating pregnancy, the two conditions being regarded as identical. In 1713, however, Amberg gave a report of a case which might be regarded as genuine. Reading critically through the literature of later times, several régimes of treatment were definable, each with its firm adherents. At the time when blood-letting was fashionable it was naturally applied to every case of eclampsia, and undoubtedly cured some cases which would otherwise have proved fatal. With the discovery of chloroform as an anaesthetic in complicated obstetrics its application for the control of convulsions in pregnancy naturally followed. It was only within the last half-century that surgery had made its most important strides, recovery after operation becoming the rule rather than the exception. Since also the obstetrician laid the blame for eclampsia entirely upon the foetus, the surgeon was encouraged in a third routine measure—the surgical treatment of eclampsia. This was the period of rapid Caesarean section, vaginal Caesarean section, and accouchement forcé in all its horrible branches. In the treatment of the pre-eclamptic state Dr. Jones said that he had adopted the Rotunda method almost in its entirety. The method was good, and had been responsible for a very considerable reduction in the mortality. The treatment adopted for the eclamptic state must be that which was least exhausting to a comatose patient with rapidly recurring and dangerous convulsions. Narcotics, usually in heroic doses, had been used for many years before Stroganoff of Petrograd employed them in a routine carefully regulated both as regards dosage and time of administration. He used morphine and chloral hydrate, and attached great importance to segregation in a quiet, darkened room, with avoidance of all forms of irritation. Generally speaking, Dr. Jones did not believe in venesection, and was opposed to all forms of interference with pregnancy. There were two fairly easily definable types of albuminuria in pregnancy. The first or nephritic type was gradual in onset; oedema was more often extensive, but there was little or no rise in blood pressure. There was little tendency to the onset of convulsions, but recovery was slow, and there was nearly always some permanent damage to renal function. In the second, or true pre-eclamptic, variety there was a much shorter history, and oedema might be trifling, but the blood pressure was almost always raised, and without treatment convulsions followed almost inevitably; should recovery occur there was seldom any permanent damage to

the kidneys. Other premonitory signs must be looked for, including the swollen face and puffiness affecting the hands, the lower abdomen, or the vulva. Headache, vomiting, drowsiness, and disturbances of vision were danger signals, and there should be no delay in the commencement of drastic treatment. The pre-eclamptic patient should be confined to bed as soon as her condition was discovered, and three ounces of mist. sennae co., with one drachm of magnesium sulphate to each ounce, should be given every eight hours. No food was allowed, but if vomiting occurred water or weak tea was permissible. The urine was collected and twenty-four-hour specimens measured. Large fluid consumption with purgatives must be continued until over forty ounces of urine were passed on two consecutive days. All being well it was then possible to begin with milk, leading up to milk puddings, fish, and other light diet. Unfortunately a large number of these cases were not seen in time; 20 per cent. occurred during labour, when the prognosis was least serious. The 60 per cent. beginning between the fifth month of pregnancy and term were more alarming, but most fatal of all were the 20 per cent. which began after labour was terminated. Morphine was given in sufficient doses to keep the patient moderately narcotized throughout its exhibition. Magnesium sulphate, by its synergistic action, enhanced the sedative effect of the comparatively small doses of morphine. Luminal had replaced chloral hydrate for two reasons: it was not a cardiac depressant like chloral, and it had in addition a specific dilating effect on the vessels of the brain. Venesection was recommended in practically every case where the blood pressure exceeded 140 mm. of mercury, and even this stipulation might be disregarded when the rectal temperature was high and the convulsions were frequent. A most dangerous preparation to use in eclampsia was pituitrin. With regard to labour complicating eclampsia, it was most important to realize that recovery varied inversely with manipulation. If the cervix was not dilated manual dilatation should never be employed, and version was contraindicated unless delivery was impossible without it. Forceps were permissible only to shorten the second stage, when the cervix was fully dilated and the presenting part almost on the perineum. Tables were shown giving the mortality (1) where delivery was natural, (2) when minor manipulations were used, and (3) in cases where forceps, Caesarean section, or accouchement forcé were adopted. Treatment of the convalescent stage was discussed and case histories mentioned in conclusion.

Partial Gastrectomy.

Mr. H. W. GABE demonstrated two cases in which partial gastrectomy had been performed for chronic gastric ulcer with success.

(1) A man, aged 41, had a history of ten years' abdominal discomfort, coming on about two and a half hours after food. Vomiting was frequent and relieved the pain; the vomit was of a brownish colour but never bright red. On occasions the pain was relieved by taking food. The periodicity of the attacks had been well marked, and dieting had no real relief. Constipation was noted, and loss of weight had been gradual. Examination of the stools for occult blood had been positive. The Wassermann reaction was negative, and the *x*-ray report stated that there was delay in the emptying of the stomach, with a penetrating ulcer on the lesser curvature near the pylorus. In spite of a Hurst diet and the administration of atropine, the patient lost weight steadily. Operation by Moynihan's method of partial gastrectomy was performed and an ulcer the size of a sixpenny piece was found present on the lesser curvature, near the pylorus, and adherent to the pancreas. Microscopical section showed it to be benign, with much fibrosis. For the last fifteen months since operation the patient had followed his work as an engine driver with regularity. The abdominal symptoms had disappeared entirely and his weight had increased from 8 st. 2 lb. on admission to 11 st. 4 lb. in January this year.

(2) A woman aged 40. She had had her first attack of indigestion sixteen years previously, with pain immediately after meals. The symptoms had recurred with regularity. Alkalis at first relieved the pain, and the appetite was good. The patient was much wasted, with a scaphoid abdomen; there was no local tenderness nor rigidity, and no tumour was felt. A test-meal analysis showed gastric function to be mainly of the normal type; there was rather prolonged secretion with some degree of hyperacidity, and the result was compatible with gastric ulcer. With a barium meal an hour-glass stomach was found; the stricture dividing the stomach was placed about midway between the cardiac and pyloric orifices. There was also definite scarring of the anterior wall of the first part of the duodenum. An operation by Moynihan's method of partial gastrectomy was performed, the distal pouch of the stomach and the appendix being removed. About nine small ulcers were seen in the specimen of the stomach. The ulceration appeared to be confined to the mucous membrane, and section of the ulcer showed a subacute form of inflammation between the gastric gland acini. There was no evidence of malignancy. The patient was now on ordinary diet, suffered no discomfort, and was putting on weight steadily.

Mr. H. E. QUICK gave a demonstration of the slit-lamp associated with the names of Gullstrand and Vogt. This apparatus was primarily an instrument combining brilliant critical illumination of the tissues of the living eye, with a binocular microscope.

Reports of Societies.

RENAL HAEMATURIA.

AT a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, on January 14th, with the President, Mr. ANDREW FULLERTON, in the chair, Sir ARTHUR BALL read a paper on renal haematuria.

Sir Arthur Ball first commented on the serious import of this symptom, and then gave an account of the difficulties frequently met with in diagnosis; he showed how serious the result might be when there was delay in exploring a kidney which had been proved to be the source of the haemorrhage. This was illustrated by the notes of five cases. The function of the other kidney, and the total power of excretion, should be estimated previously, so that, if necessary, nephrectomy could be performed without hesitation. Details were then given of three cases in which the kidney was found apparently normal when exposed for haemorrhage, and the paper concluded with a brief review of the hypothesis as to the origin of "adrenal rests" and tumours of the kidney.

Mr. A. A. MCCONNELL emphasized the importance of examining a patient by cystoscope during the actual time of the haematuria. The first attack of haematuria might be separated by months or even years from the second attack, and therefore every patient should be examined by cystoscope during the first attack. Sometimes patients suffered from two attacks without any attempt at diagnosis being made, and when they were finally admitted to hospital the condition was found to be inoperable. He referred to the difficulty of finding the source of the haematuria in some cases, but thought that if it was impossible to make a diagnosis of a kidney lesion before the operation he did not think it was possible to make it while operating.

Sir W. I. DE C. WHEELER said that it must not be forgotten that ligaturing the ureter in cases where nephrectomy was impossible or hazardous might be the operation of choice. He had had one case when nephrectomy was attempted by a surgeon of great experience and skill in this branch of surgery, but had to be abandoned, owing to difficulties arising from previous operations and the onset of uncontrollable haemorrhage. The patient was passing blood and pus in large quantities, associated with the presence of calculi. The calculi were curetted out of the kidney bed, and the ureter was divided and ligatured by the extraperitoneal route through a ventral incision. The patient recovered. Sir William Wheeler recalled two consecutive cases of haemorrhage from the kidney from rare causes. In the first case there were four stones in the upper pole and ten in the lower pole of the kidney. After nephrectomy a tumour was found, which, on microscopic section, proved to be squamous-celled carcinoma. A series of sections demonstrated the transition from pelvic to squamous epithelium, with the addition of squamous cells embedded in dense fibrous tissue in the capsular area. Infiltrating strands of squamous epithelium with "pearl" formation were present among the glomeruli and tubules. Squamous-celled carcinoma of the kidney was very rare. In the great majority of published cases calculi were also present.

In the second case the haemorrhage from the kidney came on suddenly and in greater profusion: life was only maintained by transfusion of blood. Cystoscopic examinations were made without result owing to the continuity of the bleeding. The haemorrhage finally ceased, but on

palpating the left renal region it recurred and a nephrectomy was at once performed. On examination of the specimen an angiomatous tumour was discovered, which took the form of proliferation of small blood vessels forming a rich arterial plexus At the upper end of the pelvis a plexiform mass of thick-walled vessels was observed occupying an area of about 1.5 centimetres in diameter. Other cases had been recorded, but angiomata of the kidney were extremely rare.

Mr. V. J. McALLISTER said that congenital polycystic kidney must be remembered as a cause of haematuria. The cysto-urethroscope was sometimes useful in discovering the source of bleeding. He referred to a case which he had recently seen with a long history of urinary trouble and severe bleeding; it was found at operation that the kidney had been very largely destroyed as a result of chronic inflammatory change. He also mentioned the case of a young man who suffered from very severe pain and haemorrhage from one kidney; the cortex was incised and found normal. The kidney was then removed, when hydronephrosis was found and microus haemorrhages. This would have caused the bleeding, but he did not think it could have caused the severe pain. When treating a patient in early adult life for haematuria the possibility of tuberculosis should always be borne in mind.

Mr. A. CHANCE referred to chronic interstitial nephritis as a cause of haemorrhage. He had seen a man five years ago with severe recurrent haematuria; cystoscopy showed blood coming freely from the right ureter. The right kidney was exposed, and appeared outwardly to be normal, but owing to the severe haemorrhage it was removed. Later, the patient had haemorrhage from the other side, and during the next year there were four or five attacks of bleeding. He was now in hospital, having been operated on for chronic duodenal ulcer.

Dr. W. M. CROFTON said that if bleeding from the kidneys was caused by tuberculosis he thought it could be cured by immunization. Microbial cultures were very important, and cultures should be made even from urine which contained no pus.

The PRESIDENT called attention to the danger of treating haematuria by medicine. Some tuberculous cases had been treated by tuberculin, but he himself was against this, and thought that haematuria was very difficult to cure except by radical surgical operation. He did not believe that copious haematuria from the kidney was at all a common symptom of tuberculosis. Nearly all his patients had been cystoscoped. In his own series of 600 cases 47 were classified as having essential haematuria; these were cases in which no cause for the haemorrhage from the kidney could be found. There were 44 cases of renal calculus; this could give rise to severe haematuria. There was one case of pyelitis and renal tumour, and some cases of polycystic kidney. In one case of polycystic kidney in which the kidney was removed against his advice the patient died from uraemia. A very small injury to the kidney could produce haematuria. It was useless to attempt to diagnose cases of haematuria without a cystoscopic examination. In cases of tumour of the kidney, even in the early stages, there was generally some distortion of the pelvis, and it was usually possible to diagnose some alteration in the shape of the pelvis or the kidney, apart from the actual filling defect. In cases of ureteral papillomata if with a catheter it was possible to get beyond the level of the small papilloma, and then clear urine was obtained, the inference was that the haematuria was coming from some portion of the ureter. Quite a large number of patients with nephritis had unilateral or bilateral haematuria. The presence of organisms in the urine was not proof of disease. In one of his cases tubercle bacilli had been seen in the urine; he had watched the case for several years to see if tuberculosis would develop, but the patient had remained well.

Sir ARTHUR BALL, in reply, agreed that it was most important in these cases to make an early diagnosis. It was sometimes very difficult to know when a kidney should be removed, and, though it was a grave responsibility to remove an apparently healthy kidney, still, in some cases, delay due to inconclusive evidence was disastrous.

Ectopia Vesicae.

Mr. W. C. STEVENSON showed a treated case of ectopia vesicae in a boy aged 10. Mr. Stevenson said that he had transplanted first the right ureter into the rectum on February 26th, 1926, and the left on June 29th, the bladder being removed on November 16th. The ureters traversed the rectal wall between a longitudinal muscular band and the mucous membrane for an inch, following the technique described in the Mayo Clinic. A tube was left in the rectum for six days after each transplantation. The boy had good control of his rectum, but sometimes wet the bed at night.

Mr. A. CHANCE said that this operation, in his mind, had a series of merits which put it above all other operations for the condition. It was technically easy to deal with one ureter at a time, and it was safer than to operate on both together. The risk of infection of the kidneys was reduced to a minimum by the valvular method of inserting the ureters into the pelvic colon.

Mr. V. J. McALLISTER referred to an operation which had been praised by Professor Young of Baltimore for ectopia vesicae. The bladder was approached from the perineum, an incision was made to expose the perineal tissues, the central point of the perineum was divided, and it was then easy to get to the base of the bladder. In this way the bladder could be drawn right down into the pelvis.

Sir ARTHUR BALL had only operated on one case of ectopia vesicae, and that was nineteen years previously. He had transplanted both ureters at the same time, and the result had been very satisfactory. The patient (a man) was now perfectly well, and able to earn his own living. It was questionable whether it was safer to operate on one ureter first or to treat both simultaneously. He had seen several patients with this condition since the one he had operated on, but they had all died before they were in a fit condition for operation.

The PRESIDENT, referring to Coffey's operation, said he did not think it was advisable to operate on both ureters at the same time. In adults operations on the urinary organs were never contemplated until renal function tests had been made. These tests, however, were not used for children, and he thought they ought to be. One child upon whom he had operated had died of uraemia about thirteen days after the operation. One of the kidneys was enlarged.

Sir WILLIAM WHEELER said that he thought the result in the case of ectopia vesicae was very satisfactory. He had under observation a little boy, aged 10, who had been so well nursed that cleanliness was complete, and the everted wall of the bladder was not inflamed; there was no ulceration, and the urine was not ammoniacal. He thought that all attempts at plastic operations should now be abandoned, and that the transplantation of the ureters should be recommended as a routine. The prognosis was far better if the urinary flow was diverted into the rectum by modern methods than if the patient was left alone. Ascending infection occurred in the great majority of unoperated cases before adult life. Coffey had sent him a description of his operation, and the new technique appeared simple and safe. He did not agree, however, that this improved technique justified transplantation of both ureters at the same time.

Massive Gangrene in Youth.

Mr. STEVENSON showed also a case of amputation of the arm for dry gangrene in a girl, aged 22, following abscesses in the tonsils and an acute septic condition of the left side of the neck and shoulder. The patient had been sent for radium treatment of the subclavian area with a view to improving the condition of the arm, which was pulseless owing to the blocking of the subclavian artery, presumably by a septic clot. She had been given an autogenous vaccine. A pad containing radium was applied over the subclavian, and a smaller one in the axilla for three hours. The fingers were gangrenous on admission when the radium was applied, and a line of demarcation formed in the middle of the forearm within twenty-four hours of its application. The arm was amputated two days later, eight days from the onset of the subclavian trouble. A circular amputation of the forearm was abandoned, as there was no

sign of bleeding. A small artery spouted feebly for an instant at the back of the arm when the muscles were severed above the elbow. There was no other bleeding except a slight ooze from the medullary cavity of the humerus when it was divided about the centre of the arm. A tourniquet was not employed, and no vessel was ligatured. As the muscles appeared healthy, the stump was closed by suture, leaving in a large drainage tube to avoid tension and as a precaution in case of sepsis, which, fortunately, did not occur. No tight bandages were applied, and the stump was kept warm for a fortnight with the aid of a carbon filament electric lamp. The stitches were removed after a fortnight. As the wound at the end of the stump was sluggish and appeared bloodless on the eighth day, the end of the stump was radiated for six hours, and the subclavian area and the axilla for nine hours. The stump was completely healed three weeks later.

Dr. CROFTON said that when he saw the patient she was extremely ill. Her arm was very swollen, pus was pouring from the left tonsil, and she had a severe headache. The heart sounds were quite clear and the pulse was traceable, though in the axilla there was no pulsation. He gave her antigen. Next day she was better, but there was still no pulsation in the arm, and he thought it was possibly a case of thrombosis, and sent her into hospital.

Mr. R. C. B. MAUNSELL commented on the rarity of massive gangrene in a young person with the arteries apparently healthy. He thought this must be a thrombosis which accompanied an acute bacterial disease; he would hardly call it a septic thrombosis, but thought it would be wiser to call it an infective condition. He had seen a similar occurrence during a case of acute osteomyelitis. Rendle Short had stated that during the last four years he had had three or four cases of gangrene of the arm following pneumonia, and Mr. Maunsell thought that the present case was almost identical with those of Rendle Short. He did not think that such a case of almost sudden massive gangrene should be termed dry gangrene, but that it should be included in the moist gangrene class. He did not agree that radium could have done anything for a condition like this. Rendle Short had brought out another point—namely, the type of case in which embolectomy should be done. Mr. Maunsell had tried embolectomy in one case, but owing to extensive clotting in the distal arteries no benefit to the patient had followed.

Sir WILLIAM WHEELER pointed out that obstruction to one of the main arteries in the course of infective diseases was not very uncommon. Rendle Short had drawn attention to thrombosis of the arm following pneumonia, and described an unsuccessful case of embolectomy. One case had been reported of a child under three years of age in whom both legs became gangrenous during an attack of scarlatina. Blockage of arteries also occurred in typhoid, typhus, and other fevers. Recent results of embolectomy were most encouraging. In cases where the artery was inaccessible, such as at the bifurcation of the aorta, the embolus could be teased out by opening the external iliac arteries or upper portion of the femoral. According to Jefferson, fifteen successes had been obtained in twenty-eight cases since 1922. There was no more urgent operation in surgery than blockage of a main artery, except the control of haemorrhage, and it must be performed at once if success was to be expected. The question of how long the blood stream through the deep arteries to an extremity could be suspended by an embolus was of great importance, but had never been accurately estimated. Sir William Wheeler mentioned a very successful case of embolectomy recently reported by Jefferson. The embolus was situated at the origin of the superior profunda artery of the left arm. The clot was removed through a longitudinal incision under local anaesthesia, and the relief afforded was immediate and dramatic, the arm completely recovering. The lesson was that a limb could be saved when gangrene was impending, if operative treatment was not delayed.

Mr. STEVENSON, in reply, said that the specimen now did not resemble a dry gangrene, but when he had first seen the patient her fingers were black and quite dry, the whole arm was discoloured, and it looked as if it would have become quite dry.

Traumatic Dislocation of Hip.

Mr. R. A. STONEY showed skiagrams of a case of traumatic dislocation of the hip in a child, a boy of 6, who, while crossing a road, had been run over by a motor car; when picked up he was lying between the two wheels, the front wheel having gone over him. The head of the bone was out of position. An anaesthetic was given, and the dislocation was reduced by full flexion, abduction, eversion, and full extension. The head of the bone went into position, and on the third day the child was allowed to move his leg freely; on the seventh day he was allowed out of bed, and on the eighth day he left hospital, able to walk.

Mr. W. DOOLIN mentioned a somewhat similar case of traumatic dislocation in which the posterior margin of the acetabulum was broken off. This patient, however, was not fit to be discharged from hospital for about five weeks.

Mr. H. STOKES referred to a patient with a dislocated hip whom he had treated in hospital, and who had had the condition for eight weeks. In all textbooks it was agreed that it was impossible to get a hip in after a month, but he had had no difficulty in getting in this patient's hip with ordinary manipulations.

TREATMENT OF RINGWORM BY THALLIUM ACETATE.

AT a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on January 28th, the President, Dr. G. E. NESBITT, in the chair, Dr. MAURICE DRUMMOND showed three cases of ringworm in children, aged respectively 6, 4, and 2 years and 5 months, which had been epilated by the internal administration of thallium acetate.

Dr. Drummond said that the method had been used successfully in over 500 cases by Cicero and Peter in ringworm schools in Mexico, and in over 100 cases by Buschke and Langer in the Rudolf Virchow Hospital, Berlin. He gave a short account of the experimental and clinical methods by which these investigators had made this form of epilation practicable and safe. It was essential that the protoxide of the acetate of thallium should be used; he had employed the preparation of Kahlbaum. The Germans had found that 8 milligrams per kilogram of body weight was the most satisfactory dose for children of all ages. Peter in Mexico gave 5 milligrams per kilogram for children under 5 years. In each of the children shown 8 milligrams had been administered. Dr. Drummond had found it only just sufficient in the case of the two younger children. The drug was given in 2 oz. of sweetened water. Rapid and profuse fall of the hair occurred on the fifteenth day with the two younger children. The fall had not been so satisfactory with the eldest child. The action of the drug was apparently selective, the eyebrows and fringe on the front of the head being unaffected. Since *x*-ray epilation could not be performed in children under 3, he thought that thallium epilation should be of much value in such young children and in epidemics. The eldest child's hair was growing again well after epilation in November, and was beginning to grow in the case of the second child, who had been treated in December. The youngest child had only just been epilated. The drug was contraindicated in the presence of albuminuria. In case of partial failure a further dose must on no account be given within at least two or three months, as the action of the drug was strongly cumulative, and symptoms of acute poisoning might develop. The greatest care was necessary in the weighing of the child and of the drug. Dr. Drummond was not yet sure that a slightly higher dose might not be necessary with older children. The constitution, the climate, and the freshness of the drug were all factors to be considered.

The PRESIDENT said that the effects of the treatment in the three cases shown were very striking. He regarded the method as much better than *x* rays, but further experience would be necessary before a final judgement could be pronounced.

Dr. E. FREEMAN referred to a statement in the *British Journal of Dermatology*, in which it was reported that

104 cases of ringworm had been treated successfully by this method; in all of them the hair had grown again.

Dr. W. G. HARVEY referred to the original experiments with thallium by Sabouraud, which had been quite unsuccessful; the very large doses employed had perhaps been the cause of the failure, since very serious symptoms had arisen after treatment, such as haemorrhage and purpura. This method now seemed to be of much use, quite apart from the question whether it would replace *x*-ray treatment. The difficulty of *x*-raying young children was great.

Dr. DRUMMOND, replying, said that Langer in Berlin had stated that they only obtained the thallium salt from one chemist, and that the drug deteriorated with age. If the drug was fresh the hair would fall out on the fifteenth day after application, but if the drugs were not fresh when applied the hair might take three weeks to fall out.

Spontaneous Cerebral Haemorrhage.

Dr. V. M. SYNGE showed specimens from a case of spontaneous haemorrhage into the brain of a man, aged 21, who while at work fell down unconscious. He had been perfectly healthy previously, and had received no injury of any sort.

When admitted to hospital a few hours later he was still unconscious, the limbs were rigid and flexed, and occasional clonic spasms occurred. The neck was stiff. The pulse was 66, the temperature 99° F., and the respirations 26. He vomited undigested food several times. A catheter specimen of urine contained a fair amount of albumin. The blood pressure was normal, and the blood urea was 65 mg. per 100 c.cm. During the following days the temperature rose to 104° F.; the unconsciousness diminished. Two days after the attack 30 c.cm. of cerebro-spinal fluid was removed by lumbar puncture; it was under great tension, and contained much blood. There was no improvement after the puncture. The blood Wassermann reaction was negative. The patient remained semi-conscious, the neck stiffness increased, Kernig's sign was positive, and the limbs were stiff but without paralysis. Five days later another lumbar puncture was performed, and 35 c.cm. of fluid under tension was removed. A little blood was present, but the fluid was otherwise clear; the globulin was slightly increased, glucose was present, there was no pus, the fluid was sterile on culture, and no tubercle bacilli were found. An intravenous injection of sodium salicylate solution was given, the high temperature, general condition, Kernig's sign, and the characters of the cerebro-spinal fluid suggesting the probability of encephalitis lethargica. The temperature dropped, the pulse, which had been 100, fell to 60, but there was no improvement in the general condition. The fundus of each eye was normal. The patient became suddenly convulsed, he collapsed ten days later, and died in a few hours. At necropsy there was no sign of any injury. In the anterior horn of the right lateral ventricle there was a mass of clotted blood which had destroyed a large part of the frontal lobe; all the ventricles were full of blood, and there was a mass of effused blood on the base of the brain. The heart, spleen, kidneys, and other organs were normal, and there was no sign of arterial disease. Sections failed to show any evidence of a tumour in the brain, and the kidneys were normal.

This apparently quite spontaneous haemorrhage had evidently originated in the right frontal lobe, burst into the ventricles, and thence into the subarachnoid space.

The PRESIDENT said that in so young a patient no one would have thought of making a diagnosis of cerebral haemorrhage, especially in the absence of the phenomena which were usually expected. The cause of spontaneous haemorrhage was always difficult to ascertain. It was possible to have fairly advanced renal disease with a blood urea figure no higher than 65, and he thought that in this case the boy probably had some chronic renal disease. The earliest incidence of cerebral haemorrhage that he could remember had been in a woman aged 29.

Sir JAMES CRAIG said that although in this case the blood urea was greater than normal, yet the kidneys were healthy. He did not think that it could be assumed that the haemorrhage was due to any kidney disease.

Dr. SYNGE, replying, said it had not been possible to examine the artery which had actually ruptured, on account of the destruction caused by the haemorrhage. The small arteries seen under the microscope appeared to be perfectly normal, and he did not think that an artery was likely to rupture unless the pressure inside was very great. Nothing abnormal had been found in the kidneys, and there had been no evidence of nephritis, except albuminuria, which had been present at first. It was, however, very hard to examine the urine, as the patient had suffered from persistent incontinence.

VERTIGO.

AT a meeting of the Manchester Medical Society on February 2nd, Dr. A. A. MUMFORD in the chair, a discussion on vertigo was opened by Dr. R. I. POSTON.

Dr. Poston dealt with the occurrence of vertigo in epidemic encephalitis or encephalitis lethargica, where this symptom was often associated with other signs of vestibular disorder. Recalling Gertier's "paralysing vertigo" of 1888, he then proceeded to describe "kubisagari," the endemic paralytic vertigo of Japan. Both disorders had much in common, and there could be little doubt that both were variants of the same condition, being due to an infective encephalitis. Dr. Poston suggested that as kubisagari occurred in Japan up to 1912, it was possible that this endemic, or undiagnosed cases of Gertier's disease in Europe, might have been responsible for the pandemic of the last decade. Cases of encephalitis with vestibular symptoms were next described, special reference being made to an outbreak in Strasbourg in 1921. Having dealt with the known pathology of the condition and the results of several experimental workers who actually found vestibular lesions in rabbits, a brief description was given of six cases of encephalitis under the speaker's own care. The vestibular reaction of these cases had been determined and abnormal induced nystagmus had been found in three. One case with complete external ophthalmoplegia was described; simple syringing of the ears with cold water had relieved ptosis, and enabled the patient to move his eyeballs in every direction, alleviating the diplopia of which the patient had complained. In the case of another patient who showed "spasmodic cramp of the upward glance," change of position altered the direction but not the character of the phenomenon. The Babinski-Weil reactions were described, each being illustrated by lantern slides showing the results in nine normal people and ten encephalitic patients. Discussing the diagnosis of vestibular encephalitis, Dr. Poston urged the importance of first excluding cerebro-spinal syphilis, ear disease, and intracranial lesions. It was stated that cases of epidemic encephalitis had occurred with gross signs of cerebellar involvement, yet at necropsy the cerebellum had been found to be normal. Nystagmus might suggest disseminated sclerosis unless definite and incontestable signs of Parkinsonism were present. The following triad was suggested as clinical evidence of disordered vestibular function in the absence of ear disease: disorders of equilibration such as vertigo, spontaneous nystagmus, and abnormal induced nystagmus or abnormal Babinski-Weil reactions. Dr. Poston offered a classification of epidemic encephalitis as follows: (1) vestibular syndrome; (2) juxtavestibular syndrome, with signs pointing to involvement of structures adjacent to or connected with the vestibular nucleus, such as oculomotor symptoms, neuralgia, facial paralysis, dysphagia, sialorrhoea, and disorders of respiration and pulse; (3) pallidal syndrome—namely, tremor and rigidity; (4) striate syndrome, or tremor and myoclonus. Pyrexia and lethargy were the only common symptoms not included in such a classification. The vestibular syndrome in epidemic encephalitis might occur alone or with such symptoms as those mentioned. It might appear at the onset, or during the acute stage of the disease, or it might persist as a residuum, and, lastly, interference with vestibular function might account for many, if not all, of the oculomotor phenomena of the disease.

Mr. DIGGLE, after mentioning that vertigo was only one manifestation of a disturbance of the vestibular apparatus, said that by artificial stimulation of the peripheral sense organ in the labyrinth all the symptoms and signs of such a disturbance—namely, vertigo, nystagmus, reeling gait, and vomiting—could be produced. He further showed that by a close study of such induced symptoms it was possible to test the integrity of the peripheral end organ, the labyrinth, and also, in a few cases, to locate a lesion in other parts of the vestibular nervous arc. Vertigo might be produced by a lesion in the labyrinth, a lesion in its intracranial and spinal connexions, or by ocular lesions. Vertigo arising in acute inflammatory conditions of the middle ear was usually relieved after an efficient para-

centesis tympani. Mr. Diggle drew attention, however, to the prevalence and seriousness of vertigo in acute exacerbations in chronic ear suppuration. The danger lay in the fact that translabyrinthine infection was the commonest precursor of fatal meningitis; the warning signal of vertigo should not be neglected. Vertigo might be due to abnormal pressure of the intralabyrinthine fluids, to irregularities in the vascularity of the organ, or to the effects of toxins upon the nerve end organ. After brief reference to the regulating device of the endolymphatic and perilymphatic membranous tubes of the labyrinth, he suggested that vertigo associated with impacted ceruminous plugs, intermittent Eustachian obstruction, and occasionally hydrops of the middle ear, could be explained by abnormal intralabyrinthine pressure. Increased pressure of cerebro-spinal fluid might directly raise the intralabyrinthine pressure and so produce vertigo, though often cerebral anaemia could not be excluded. He referred to the relief occasionally following lumbar puncture, and to the few cases recorded by Aboulker and Colledge of relief after subtentorial decompression; also to the interesting cases recorded by Mollison of relief to vertigo after trephining the external semicircular canal. In considering vascular lesions affecting the labyrinth, attention was directed to the fact that many patients when examined presented a normal inner ear. Massive haemorrhage as a cause of Ménière's syndrome was considered infrequent, though the occurrence of small leakages from atheromatous vessels he considered could not be denied. Other remote lesions, apart from intralabyrinthine haemorrhage, such as arterio-sclerosis, abnormal blood pressure, certain anaemias, metabolic disorders, and toxins, might be responsible for Ménière's syndrome. Was the vertigo in such cases due to effusions into the labyrinth, to atheromatous disease of the vessels, or to toxic neuritis? Mr. Diggle indicated the analogy in the eye—namely, tobacco amblyopia, nephritic retinal haemorrhages, and retinal detachments from effusions. He drew attention to the toxaemic conditions responsible for vertigo, to the frequent association of vertigo with nicotine poisoning and with nasal sinus suppuration. In discussing treatment he emphasized that no operative ablation of the labyrinth should be undertaken until all other measures had failed, and then only if the labyrinth was functionally inactive.

PUERPERAL SEPSIS.

AT a meeting of the North-East London Clinical Society on January 4th, Dr. F. G. CROOKSHANK in the chair, Dr. ARTHUR GILES opened a discussion on the etiology and prevention of puerperal sepsis.

Dr. Giles said that infection from within, as a cause of puerperal sepsis, was relatively uncommon; it might take the form of the waking up of a latent infection in a tube or chronic appendix, caused by the anatomical alterations associated with delivery. Infection from without was the really important matter. In the case of a confinement without either examination or interference, infection could hardly occur, except possibly through a damaged and unrepaired perineum; therefore, the more that confinements were allowed to take their natural course the less was the chance of infection. When intervention was necessary the aseptic precautions adopted should be as complete as for surgical operation, but in many confinement cases this was a counsel of perfection owing to the adverse conditions prevailing. Both objects could be attained in a great measure by a large increase of accommodation for lying-in women in hospitals and maternity homes. With cases collected under one roof each patient could be allowed time for natural delivery, and the lying-in rooms might be fitted and treated like an operating theatre, under which conditions there would probably be a marked fall in the recorded deaths from puerperal sepsis. The ante-natal investigation of every case of pregnancy would give early warning of possible complications, especially in the matter of obstructed delivery, and arrangements could be made accordingly. This was a case in which to be forewarned was to be forearmed, because many obstetrical tragedies were the result of some unfavourable feature whose presence was not known until the confinement was actually in progress.

Dr. KIRKHOPE dealt with the matter from the public health point of view, and detailed a number of cases of puerperal pyrexia notified in his district in recent months. The majority of these cases were due to intercurrent diseases such as influenza, and in one case scarlet fever, and not strictly to be included under the heading of puerperal fever. He described the new arrangements made by the local authority for the supply of consultant advice and hospital accommodation in Tottenham.

Dr. BENIANS continued the discussion from the point of view of the pathologist. The battle between the exogenous and endogenous modes of infection had waged for years, and for the moment an inevitable mortality, ranging from 0.1 per cent. to 0.2 per cent., must be accepted as being inherent at present in the conduct of the puerperium. Without belittling the obviously immense importance of asepsis, prevention and cure must be sought in other directions. Since the days of Semmelweiss it had been beyond doubt that the accoucheur might implant the infection, and Geddes (1926) had collected statistics of infective wounds and brought them into relation with the incidence of puerperal infection in the same areas. These statistics were interesting and striking, but seemed to fail by hinging on the assertion that streptococci were constantly present in infected wounds, to which many pathologists would be unwilling to assent. Many septic cases were beyond possibility of infection by the accoucheur, since they had never been digitally examined at all, so that an endogenous infection was also a possibility in perhaps not less than 25 per cent. of all septic cases. The infective agent was usually a streptococcus, and in severe cases nearly always one of the virulent pyogenes group. Western's figures (1912) of 100 cases which were very thoroughly examined had shown this beyond question. Uterine cultures had proved that the disease was an infection of this viscus, primarily, perhaps, of the placental site or of some other raw area of the genital tract; early in severe cases the organism was to be found in the blood stream. The streptococcus was not quite a specific cause of this disease, since the *Staphylococcus aureus* might produce severe and fatal infections; this organism, however, was a very rare cause, except in criminal abortion cases, which were undoubtedly due to direct implantations. It was not known how the organism reached the placental site, but it was certain that a virulent streptococcus inoculated into a tissue lesion set up symptoms within a few hours, which was seldom the case in puerperal septicaemia. In this disease there was almost always a waiting period of about two or three days after delivery; in any other disease this would be called an incubation period, a term not used in puerperal septicaemia for fear of giving grounds for the suspicion of going back fifty years or more and classing this disease with the specific infectious fevers such as scarlet fever. If they were logical and called it the incubation period, they would in this way admit that they believed some process was operating which differentiated this disease from that which usually resulted when a streptococcus was inoculated into an open wound. Attempts had been made from time to time to ally puerperal fever with scarlet fever, but few believed in any direct connexion. If there was no causal relation there was in some respects a close similarity, as for instance, in the infecting organism and in the latent period, and it was quite likely that the recent work on scarlet fever might produce something of use in connexion with puerperal fever, especially in relation to the preparation of an effective anti-serum. Assuming that the infective agent was implanted, or was present in the genital tract at the time of delivery, there seemed to be several possibilities during the incubation period. The organisms might have to ascend from the vagina to the raw placental site and effect an entrance there; this might take time. The organisms might have to increase in numbers before any sign of activity showed. The tissues, for some puerperal reason, might not be adapted to infection, and this was delayed until some tissue change occurred and they became so. Dr. Benians knew of no clinical or experimental evidence in support of this idea. The organisms might have to increase in virulence, and he thought that the crux of the

matter lay here. If delay during the latent period meant that infection was awaiting an exaltation of virulence of the organism, it implied further that the streptococcus had not been conveyed direct from a septic wound, or, if it had, attenuation in transit had occurred, which might well be the case. From an endogenous point of view an infection by streptococci normally present in the vagina would invariably require an increase in virulence. Streptococci might be increased in virulence by the process of "passage"—that is, by passing through the body, and usually the blood stream, of a susceptible animal. It was possible that something of this nature occurred in the human body after the implantation of the infective agent, and that the organism acquired virulence in the tissues; quite likely it passed out of the blood stream, and was redeposited in the placental site. If such a process as this were shown to occur it would mean that the streptococci so disseminated, though they might originally be derived from the genital tract, might also come into the blood stream from other sites, as, for instance, from infective conditions of the throat; possibilities of this sort would have to be taken more into consideration, both in connexion with the patient and with her attendants.

Dr. R. SPEARS quoted two cases in which the child had been born before his arrival and no vaginal examination had been made. In one instance, that of a multipara, a child with acute influenza was in bed with the mother. On the third day the mother's temperature rose, streptococci were recovered from the blood on the fifth day, and the patient died on the tenth. In the second case, a primipara, no vaginal examination was made, but on the day after the delivery the temperature was 104°. She ran a septic temperature, with rigors, for fifteen weeks, and collections of pus were let out from the pelvis on several occasions. Blood cultures were negative twice. There had been in this case an indefinite history of shivering attacks and sweating for six weeks before the confinement.

X-RAY TREATMENT OF RODENT ULCER.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society on February 4th Dr. J. H. T. DAVIES exhibited some cases of rodent ulcer and read a paper on this subject.

Dr. Davies stated that his object in showing these cases was to dispel the cloud which seemed to overshadow the treatment of rodent ulcer by *x* rays. The patients had not been under observation for very long after treatment, and he only drew attention to the result from an aesthetic point of view. He did not imply that *x*-ray treatment was the only, or even the best, one for rodent ulcer, but while every case should be treated individually on its own merits the method he had been using for the last ten years had given very satisfactory results. A cubic centimetre or so of 2 per cent. novocain was injected under the growth, which was then scraped vigorously with a sharp spoon. The rodent tissue had the consistency of cheese, and it was easy to distinguish when healthy tissues had been reached. The excavation was found to occupy a much larger area than the original growth, and was often of a different shape. This preliminary scraping was, he thought, the most important part of the treatment. First of all the bulk of the rodent tissue was removed; secondly, the operator was enabled to judge accurately the extent of the lesion; and thirdly, the part to be *x*-rayed was freed from any trace of the skin which would be burnt by the subsequent application of the *x* rays, and so render healing of the ulcer a lengthy and painful process. A fourth advantage was that the rays were enabled to reach the deeper parts of the lesion without passing through the overlying tissue. In process of scraping such a contraindication to radiotherapy might be discovered as the invasion by the growth of cartilage or bone, when the cavity could be filled with arsenical paste, or the whole lesion be removed surgically, or diathermy be applied. Dr. Davies asserted that no surgical excision of a rodent ulcer should be begun without a preliminary scraping. He then described the preparation of a lead shield for the surrounding skin, and said that a dose corresponding to four, five, or six Sabouraud B doses of *x* rays unfiltered was used. The ulcer healed up under a scab in about three weeks' time. This operation took less than an hour to perform throughout and was quite painless, both at the time and afterwards. In the connective tissue thus exposed to the rays there was no noticeable change, nor were any subjective symptoms felt by the patient. In cases where the rodent ulcer had been on the side of the nose there was no apparent effect on the mucous membrane inside. MacLeod, who had measured the proportion of a pastille dose of unfiltered *x* rays, using a 10-in. spark-gap through the cranial wall and coverings of a child of 3, found that no more than a quarter of the dose reached the other side. Complete surgical excision was often the best and easiest method of dealing with a rodent ulcer, provided that the preliminary scraping was employed. Unfortunately rodent ulcers frequented those situations where excision was difficult or appeared unnecessarily drastic, and in such cases, and with patients who refused surgical operation, the *x*-ray treatment described gave an equal, if not a better, chance of a cure.

Nephritis.

Dr. WALTER BROADBENT read a paper on nephritis. He laid stress on the importance of McClean's urea concentration test and on the estimation of blood urea. Of chronic parenchymatous nephritis with oedema there were two types; in one the blood urea came down to normal and the urea concentration test gave 2 per cent. or more. When this type was treated by Epstein's diet of increased protein, moderate carbohydrates, and no fat, the oedema disappeared and the patient's general condition improved greatly, so that he could lead an ordinary life. The other type, with high blood urea and low urea concentration, drifted into uraemia or heart failure. In chronic interstitial nephritis the urea concentration test sank below 2 per cent. and the blood urea increased. The blood pressure rose and there was danger of cerebral haemorrhage and of heart failure, or the case might end in uraemia. In treatment Dr. Broadbent mentioned keeping the bowels active with salts and a weekly blue pill, potassium iodide, evening hot baths, spa treatment at Contrexeville or Vittal, and occasional bleeding. For uraemic asthma, purging and morphine were recommended, and for convulsions, lumbar puncture, bleeding, chloral, and morphine. With uraemic headache he said that there were often marked signs of intracranial pressure, Kernig's sign, and difficulty in making the chin touch the chest, and sometimes extensor toe reflexes. Lumbar puncture gave great relief. *B. coli* nephritis was then dealt with. In acute attacks there were rigors, high temperature, vomiting, renal pain, and profuse haematuria. Often only one kidney was affected, and that usually the right. The condition had to be distinguished from stone, perinephric abscess, retrocolic appendicitis, cholecystitis, and even malaria, when there was no renal pain. The treatment was to render the urine permanently alkaline by potassium citrate and bicarbonate in full doses, giving also a large amount of fluid to drink. In severe cases not yielding to this treatment a ureteric catheter should be passed through a cystoscope up to the pelvis of the kidney, and be left *in situ* to afford drainage. Dr. Broadbent remarked that chronic *B. coli* nephritis, though very common, was frequently undiagnosed, as the urinary symptoms were slight. It occurred in female babies, and more often in women than in men. The symptoms were headache, loss of energy, pains in joints and muscles, and intermittent pyrexia. Recurring "influenza" was often really due to this. The treatment was alternating courses of alkalis and hexamine with acid sodium phosphate, also intestinal disinfectants.

INDUSTRIAL MEDICINE.

A MEETING of the London Association of Medical Women was held at the British Medical Association House on January 25th, with the President, Miss BOLTON, in the chair; Dr. MARGARET DOBBIE-BATEMAN gave an address on some aspects of industrial medicine.

Dr. Dobbie-Bateman said she did not intend to discuss the treatment of vocational disease, but to deal with industrial medicine in so far as it represented a particular

organization of medical practice to meet a particular social service. Factory medical officers must be distinguished from certifying surgeons. The latter were invested with certain statutory powers and were required to fulfil certain statutory duties; whereas the factory medical officers were the officials of the industrial organizations in which they worked, and had no executive but only advisory powers. Their business, from the staff managerial point of view, was to prevent the engagement of people unable by reason of physical disability to do the work required of them; to forestall absence of workers, and therefore loss of work through sickness; and to obviate loss of work through lowered physical efficiency. Restated from the point of view of the workers—and on this she laid great stress—the medical officer's duty was to restrain people from undertaking work they were unable to do, and to keep them in a full and happy capacity at work. The first aim was met by a preliminary medical examination of candidates for employment. Between those completely fit and those totally unfit was a large class whose applications had to be considered with reference to several points. Standards of fitness for employment in industry need not be so rigid as standards for acceptance in the army, where men had to be fit for service in any emergency, must be interchangeable, serve over a prolonged period, and were pensionable. In productive work no one who was likely to be able to help in producing should be excluded from doing so. In practice the number rejected from those industrial occupations of which the speaker had experience need be very few. It was often possible to allocate suitable work to a candidate who would not be capable of work in certain departments, or to recommend treatment, after which the candidate was fit for any work. A knowledge of the industrial processes was therefore necessary to the medical officer. Unfortunately certain people still had an objection to a compulsory medical examination, and Dr. Dobbie-Bateman was now trying the experiment of a voluntary medical examination for applicants over the age of 16; for younger people she was convinced that compulsory examination was necessary in their own interests. For the prevention of absenteeism two procedures were essential—namely, the examination of staff returning from sick leave, if possible before they rejoined their departments, and the rule that the only pass-out given to workers leaving their posts for reasons of health should be given by the medical officer. The first rule prevented people from returning to work before they were fit to do so, and, on the other hand, the knowledge that a visit had to be paid to a medical officer acted as a deterrent to those whose headaches tended to occur on the Tuesday after a bank holiday. The industrial medical officer was also called on for first aid, for advice as to lighting, heating, and ventilation, for the determination of optimum periods of rest, and for the superintendence of canteen arrangements. There was urgent need of a dental scheme in connexion with industrial medicine, and an ophthalmological service would also be of value. Finally, research into industrial dermatitis and industrial fatigue should be actively pursued.

JAMES MACKENZIE INSTITUTE.

AT the opening meeting of the Spring Session of the James Mackenzie Institute for Clinical Research, St. Andrews, on January 18th, the honorary director, Dr. MAITLAND RAMSAY took as his subject toxic iritis. He deprecated the use of the term rheumatic iritis because, though sometimes associated with chronic arthritic states, iritis practically never occurred in rheumatic fever. In the course of his lecture Dr. Ramsay described fully the symptoms and treatment of the condition. He said, however, that he had chosen the subject, not as a lecture on eye disease, but because it so aptly illustrated the general principle that the cause of disease was not necessarily to be found in the organ manifesting the symptoms. Toxic iritis being a local manifestation of a general state, local treatment was essential to its relief, but cure was not obtained until general treatment had removed the underlying cause, and so prevented recurrence. For success general treatment must depend upon recognition of the toxic process. In many cases the focus of infection was found in the teeth, the tonsils, the nasal sinuses, or the intestinal tract, but in others it followed after an attack of some general infection such as influenza. In some cases the source of the infection remained a matter of conjecture, and the iritis was then termed idiopathic, but it was difficult to understand how an iritis could occur in a healthy patient. When, for example, a posterior synechia interfered with the intraocular circulation and tension, the local symptoms were intense. The relief afforded by iridectomy was so complete that apparent cure resulted, but if general treatment was discontinued recurrence of the inflammation in the affected or even in the healthy eye was to be expected. Operation was a confession of failure, and if its dramatic results led to neglect of general treatment disaster would inevitably follow.

On February 1st Dr. ORR gave an address on the later views of Mackenzie on the nature of cardiac action, with particular reference to the phenomena of heart-block. Mackenzie's work, he said, was the subject of adverse criticism, mainly on the ground that it was purely speculative. Mackenzie was a speculative thinker, but the views he expressed latterly were based upon prolonged clinical observation. In view of this criticism it was important to examine Mackenzie's position critically in the light of modern experimental research. This position was distinctive in its conception of the Purkinje system of the heart—the nodes and bundle—as the regulating and controlling structure of the organ. The heart muscle only contracted in response to stimuli reaching it from this source. Conduction in the bundle was attained, not by the passage of an impulse along a conducting structure, as that term is generally understood, but by successive stimulation of contiguous cells in the bundle, each one discharging an individual impulse. For this reason Mackenzie described the nodes and bundle as the "genetic" system of the heart. Dr. Orr then discussed recent experimental work upon the passage of the excitation process in the various parts of the heart. It was generally agreed that the S-A node was normally responsible for initiating the cardiac contraction. As regards the spread of the excitation wave through the auricle, the balance of evidence, having regard to direction and spread and rate of transmission, was greatly in favour of a spread through the auricular node. A spread between the S-A and A-V nodes by means of a distinctive path had not been demonstrated, though an experiment by Mines showing the persistence of electro-cardiographic deflections after muscular contraction had been abolished was suggestive. In the ventricle there was no doubt that the spread of excitation was accomplished by means of the bundle and its ramifications. The question centred upon the means by which this spread was accomplished, whether by simple conduction or by cell stimulation. Experimental observation made it clear that the A-V node could not be regarded as a simple conductor, but that it acted as a centre for the discharge of impulses. The phenomena of the nodal extra-systole and of reversed heart-block demonstrated this conclusively. With regard to the bundle, the question presented itself as to the source of the ventricular beats in complete auriculo-ventricular dissociation. That there was no "set" ventricular rate was shown by the fact that, in a single individual the subject of complete heart-block, the ventricular rate varied at different times from 30 to 45 per minute. The electro-cardiogram in conditions of complete heart-block showed that the excitation wave entered the ventricle supraventricularly. It presumably had its origin either in the A-V node or in the supraventricular part of the bundle immediately peripheral to the lesion. This view was accepted by many experimental observers, and the trend of recent work appeared to be in the direction of regarding the whole Purkinje system as essentially a stimulus-producing structure. Mackenzie's conception of the Purkinje system as a "genetic" structure afforded a complete and consistent explanation of the phenomena observed experimentally and clinically. The only other alternative was to regard it as a conducting mechanism which, in certain circumstances, acquired the capacity of stimulus production.

Reviews.

A CYCLOPAEDIA OF PATHOLOGICAL ANATOMY AND HISTOLOGY.

Two volumes of the cyclopaedia of pathological anatomy edited by F. HENKE and O. LUBARSCH were reviewed in the JOURNAL of March 6th last (p. 427). They contained altogether nearly 2,000 pages. These were Volumes II and VI. The first part of the fourth volume,[1] issued a short time ago, contains over 1,100 pages. The volume has to do with the morbid anatomy of the alimentary system, including diseases of the pharynx, the tonsils, salivary glands, the stomach, the intestines, and the peritoneum. Acute and chronic ulcers of the stomach and duodenum are described in great detail and the text is illustrated by some excellent coloured pictures. An account of experimental work and clinical investigations is followed by a summary. Briefly, the conclusions are that simple ulcers and haemorrhagic erosions are due to infarct of the mucous membrane. The area affected may be from one to four centimetres in width, but may subsequently enlarge. Arterio-sclerosis may be the initial vascular lesion, and embolism may arise after operation or be due to sepsis, and in young individuals the vascular disturbance may be neurogenic. A chronic ulcer may be started by the same causes as the acute, but special features of the physiology and anatomy of the stomach play a part; mention is made of the increase in the acidity of the gastric juice, and of irritation of the ulcer by movements of the stomach. The ulcer may cause the movements to be augmented and to become cramp-like, perhaps constricting the vessels. Associated endarteritis is important. The same facts hold for duodenal ulcer, and pyloric spasm and hypertrophy dependent on neurogenic influences are factors also. The so-called gastric street along the lesser curvature is of importance in both acute and chronic ulcers because the vascular supply and the nerves have here a special distribution. The literature cited covers forty-two pages.

The section on the tumours of the stomach is most excellently illustrated. Many aspects of the etiology of carcinoma are discussed, including, of course, the relation of chronic ulcer to carcinoma. The author of this section, Professor Dr. R. Borrmann-Bremen, concludes his long analysis by saying, "I personally hold the view that the number of 'ulcer carcinomas' definitely proved, which can stand the most searching criticism, reaches only 1 or 2 per cent."

The eighth volume, which has also been published, is devoted to the glands of internal secretion. More than half of its thousand pages are devoted to the thyroid and parathyroid glands; the sections on the thymus, pineal, pituitary, and the suprarenal and chromaffin system occupy the remainder. There are three hundred and fifty-eight illustrations, some of which are coloured. The value of the volume would have been increased if to each section a summary of what the author considers may be regarded as well attested knowledge had been appended. This is done in some cases, but not in all. A very full account is given of exophthalmic goitre. Despite the vast amount of attention devoted to its pathogenesis many features are still obscure. The author's conclusion is that a combination of factors are concerned in its production; there is first the abnormal constitution, in which the most important factor is the special reaction of the nervous system. Hyperthyroidism, it is believed, is brought about either through psychical influences on the secreto-motor nerves of the thyroid gland, or by chemical means through the increased activity of associated organs, or finally through disease processes in the thyroid itself. The theory that endemic goitre is primarily due to insufficiency of iodine is accepted. This insufficiency, it is supposed, renders the performance of the functions of the thyroid difficult, and then accessory causes, such as a diet deficient in fat, water-borne infections, lack of sunlight (and of ultra-violet light in particular), as well as other factors, induce the phenomena of thyroid deficiency.

The author of the section on the pineal gland, despite the lack of physiological evidence, believes that structure, comparative anatomy, and cytology establish its glandular nature. This conclusion is in harmony with the observations of human pathology, to the effect that it plays a part in the production of the sexual characters and activity. Knowledge of the pathology of the parathyroid is in just the opposite state. There is abundant evidence of its association with tetany, with calcium metabolism, and therefore with the pathology of such diseases as osteomalacia, but morbid anatomy has no special changes to describe.

The relation of the pituitary to certain diseases is set out in tabular form, the substance of which may be reproduced here; it is interesting in view of recent work which has tended to extend the anatomical basis of these disorders to the adjacent areas of the diencephalon.

Relation of the Pituitary to Disease.

Acromegaly. Excessive function of the eosinophilous cells of the hypophysis.

Giantism. In the acromegalic type through excess of the secretion of the eosinophilous cells before the cessation of bone growth. In the eunuchoid type, probably a combination of hypofunction of the sexual glands and hyperfunction of the hypophysis.

Hypophyseal Dwarfism. Disappearance or marked reduction of the function of the anterior lobe before the cessation of bone growth. The most common pathological finding is a tumour not affecting the anterior lobe, but the duct of the hypophysis; the condition may be congenital, or may come on in infancy or perhaps later.

Hypophyseal cachexia occurs predominantly in women, and is attended by disappearance or great reduction of the function of the anterior lobe.

Dystrophia Adiposo-genitalis. Destruction of the correlation between the hypophysis, probably the anterior lobe, and the diencephalon.

Diabetes Insipidus. Destruction of the function of the nervous part of the hypophysis (posterior lobe, infundibulum, floor of the third ventricle).

The twelfth volume is on the ear. The gross anatomy of the region is shown in some excellent coloured pictures, and the histology is most adequately rendered by the reproduction of serial sections through the ear. A long section on the inflammatory diseases is followed by one on the regressive, degenerative, and dystrophic changes; others deal with tumours, malformations, injuries, foreign bodies, and parasites. An attempt is made to correlate the effects of disease with the theories of hearing. The tympanic membrane is rarely affected alone, but it would appear that lesions of it which do not destroy its integrity, such as partial thickenings and patches of calcification, have only a slight effect on the acuity of hearing. Scar formation and perforation seem mainly to limit the appreciation of low notes. The acuity of hearing is thought to be dependent on the preservation of the stapes and its mobility. If it becomes fixed hearing is made much more difficult, and there is a loss of sensibility to the higher tones. Though the drum, malleus, and incus be absent, if the ear is otherwise normal there is appreciation of low tones unless the stapes becomes fixed. Fixation of the ossicles without defect of the internal ear produces only very slight change in the acuity of hearing. For the author's views of the results of derangement of the fenestra rotunda, and of the cochlea, we must refer our readers to the volume itself. The author remarks, in conclusion, that it is extremely difficult to correlate the changes in hearing with the pathological findings. There are even cases of complete deafness in which no changes are found peripherally and in which it is fairly certain that central changes were absent.

There can be no doubt that this work represents a high standard of achievement. Each section contains, in addition to a discussion of the pathology of the organ, an account of the anatomy, physiology, and chemistry, and of the methods of investigation.

[1] *Handbuch der speziellen pathologischen Anatomie und Histologie.* Von F. Henke und O. Lubarsch. Berlin: J. Springer. 1926. (Sup. roy. 8vo, Bd. IV, pp. xiv + 1127, 377 figures; R.M.156, bound R.M.159. Bd. VIII, pp. xii + 1147, 358 figures; R.M.165, bound R.M.168. Bd. XII, pp. xii + 802, 640 figures; R.M.84, bound R.M.87.)

OBSTETRICS: DIFFICULT LABOUR.

DRS. CAMERON and HEWITT of Glasgow are already known to the profession as writers on obstetrical conditions, and they have recently added to their list of publications a book entitled *Difficult Labour*.[2] It is, perhaps, unfortunate that they have chosen a title which for many years has at once brought to mind the classical work of Herman, but it must be admitted that the character of the book justifies its name. In some three hundred pages the authors have endeavoured to cover the field of difficult obstetrics from the point of view of the general practitioner. This aim has been accomplished, for the most suitable lines of treatment for the anxious cases in midwifery practice are well described. It is evident that the work is more or less a record of the authors' clinical experience. The three main sections of the book deal with delayed labour, with labour complicated by haemorrhage and toxaemia, and with obstetrical operations; in two shorter sections maternal and foetal complications of labour and ante-natal supervision are discussed. No part of the subject is omitted; the chapters are written from the practical standpoint, and purely theoretical questions receive no attention. Perhaps the best chapter in the book is that on the use of forceps, and many pages are rightly devoted to the commonest operation in midwifery practice. The indications for forceps application and the value of the instrument in cases of pelvic deformity are fully considered, and attention is directed to the risks involved when the instrument is used in unsuitable cases. The authors advise conservative treatment of concealed accidental haemorrhage unless such treatment results in no clinical improvement; they base their opinion on the view that the uterus in such cases is in a state of painful spasm, which should be relieved by the use of morphine, repeated if necessary. The arguments brought forward point strongly to the correctness of this view. Hendry's method of controlling post-partum haemorrhage is severely criticized, but others will agree with Hendry's claim that the method is of value in many cases. The subjects of the albuminurias of pregnancy and eclampsia receive full attention; the authors distrust the value sometimes attached to the results of biochemical investigations of toxic cases. Few will agree with the practice of routine sterilization after Caesarean section; the writers seem to overlook the fact that the relative sterility after the operation is often voluntary owing to the patient's desire to avoid another section. This opinion has been expressed by Dr. Herbert Spencer, and is held by many other obstetricians. The subject of uterine inertia receives less attention than is due to so common a cause of delay in labour; it is dismissed in less than a couple of pages, while a page is devoted to the surgical procedures of extraperitoneal Caesarean section and plastic operations on the pelvic girdle, both matters of little moment to the general practitioner. The book has a definite place in the library of the medical man, its value lying in the clear and concise manner in which the various subjects are discussed and the general soundness of the views expressed.

The sixth edition of EDGAR'S *Practice of Obstetrics*[3] has been revised for publication by Dr. N. W. VAUX. The popularity of the book in the United States is shown by its many editions. It is a large volume, and readers will find that no part of the subject has been omitted, while it contains information on subjects not often dealt with in textbooks. After an opening discussion of the more theoretical parts of midwifery—development, ovulation, and menstruation—there follow sections on pregnancy, labour, and the puerperium. Here a rather peculiar arrangement has been adopted, for the pathology of pregnancy is discussed before touching on normal labour, and the pathology of labour before the normal puerperium is dealt with, a plan which it would be thought must tend to produce confusion in the mind of the student. The sections are themselves well written and present the essential points clearly. That on the management of the infant is worthy of special mention. Resort to manual dilatation of the cervix is advocated in many cases of placenta praevia, but we would suggest that this is risky advice for the average student, for the cervix suffers laceration only too easily in these cases. External podalic version, which is a valuable manœuvre in many cases of placenta praevia, is not mentioned. The discussion on the treatment of eclampsia leaves the reader in doubt on the question of emptying the uterus; surely there is now no need for hesitation on this important question. Obstetrical operations are described at the end of the book. Pubiotomy is mentioned only to be condemned as an obsolete procedure, and this probably is in general accord with modern teaching. We are surprised to find no mention of the combined cranioclast and cephalotribe as an instrument for craniotomy operations. We can commend the book to those who prefer a large treatise, but it will probably appeal more to the qualified medical man than to the undergraduate. The numerous figures and illustrations are excellent and well reproduced, but too many printer's errors have been left uncorrected.

[2] *Difficult Labour.* By Samuel J. Cameron, M.B., B.Ch., F.R.F.P.S.G., and John Hewitt, M.B. London: E. Arnold. 1926. (Cr. 8vo, pp. xii + 305; 33 figures. 10s. 6d. net.)

[3] *Edgar's Practice of Obstetrics for Students and Practitioners of Medicine.* By J. Clifton Edgar. Revised by Norris W. Vaux. Sixth edition. London: W. Heinemann, Ltd. 1926. (Sup. roy. 8vo, pp. xvi + 779; 584 figures. 42s. net.)

DISEASES OF THE ENDOCRINE SYSTEM.

THAT the second edition of Dr. ZONDEK'S book on diseases of the endocrine system[4] has appeared within three years of the first indicates that it has been appreciated by the medical profession.

The general scope of the book is unaltered, and the greater portion of the volume is occupied by the description of the outstanding types of endocrine disorders. The first chapter has, however, been extended, and the author discusses in detail the relation between the action of hormones and the ionic milieu of the cell. He suggests that the hormones circulate in the blood in an inactive form, and are only activated at their site of action, and advances the hypothesis that the action of a hormone is not a constant effect, but is very largely dependent on the nature of the milieu of the cell upon which it acts. In particular he associates increased vagal action with excess of potassium, and increased sympathetic action with excess of calcium. This is a very interesting but very difficult problem, and we are of opinion that the experimental evidence available is scarcely adequate to justify the author's generalizations.

The book concludes with a few pages of selected references. It is, of course, impossible for anyone to keep abreast of the colossal literature on endocrine secretions, but the author has omitted some recent work of first-rate importance, such as the researches of Abel on the nature of the active principle of the pituitary, and the work of Collip on the parathyroid gland.

As regards the vexed question of endocrine therapy, the author shows a healthy scepticism; in particular he mentions that his results with most ovarian preparations have been almost completely negative; and on page 358 he says: "A large number of clinical communications evidence a marked lack of critical capacity on the part of the authors, since they ascribe any results following ovarian preparations immediately to specific products assumed to be present. B. Zondek informs me that he also could stop amenorrhoea of some months' duration by non-specific remedies such as proteins."

The numerous illustrations were an outstanding feature of the first edition of this book, and in the new edition their number has been increased to 220. They will be found very useful by anyone who wishes to identify unusual forms of abnormalities due to endocrine deficiency.

[4] *Die Krankheiten der Endokrinen Drüsen.* Von Dr. Hermann Zondek. Zweite, vermehrte und verbesserte Auflage. Berlin: J. Springer. 1926. (Roy. 8vo, pp. ix + 421; 220 figures. R.M.37.50.)

A FRENCH TEXTBOOK OF MEDICINE.

IN Dr. JOURNÉ'S book on medical pathology,[5] the second edition of which has recently been issued, the whole domain of medical pathology is sketched in outline. He calls it a *Précis*, but it contains over fifteen hundred pages.

[5] *Précis de Pathologie Médicale.* By M. Journé. Second edition, entirely revised. Paris: N. Maloine. 1926. (Cr. 8vo, pp. 1520. 40fr.)

The orthodox method of exposition has been adopted; a short definition of each disease is followed by a concise account of the etiology, pathological anatomy, symptoms, and so forth. Details concerning pathological anatomy have, however, been considerably curtailed, only such facts being included as are indispensable to the proper understanding of the disease. Selection has also been exercised in dealing with the symptomatology. The aim has been to render descriptions as concise as possible, but sufficiently complete to include all cardinal symptoms, while those of minor importance, of inconstant occurrence, or presenting difficulties in clinical demonstration, have been omitted. Technical laboratory methods have been briefly referred to where they constitute important adjuvants in clinical diagnosis.

The arrangement of the book is partly on an anatomical, partly on an etiological basis. The majority of the diseases are described under the several anatomical systems, while the first five chapters are devoted to infectious diseases, parasitic diseases, intoxications, affections due to the action of physical agents, and nutritional diseases. The value of a book of this kind depends, not only on the completeness of the information within the assigned limits, but also upon the information being up to date. The author refers to the difficulty of keeping a textbook abreast of the continuous and rapid advance of medical science. After the lapse of a few years a medical work is antiquated. On the other hand, the multiplicity of medical doctrines with which an author is confronted is disconcerting and suggests reflections as to the possible vanity of certain pathological explanations. In this matter there is room for the exercise of discretion, and the author has endeavoured to include current doctrines which would be regarded as essential in an accurate sketch of the existing features of the science.

NOTES ON BOOKS.

PROFESSOR JEAN PIAGET of Neuchâtel has written a most interesting book with the title in its English translation of *The Language and Thought of the Child*,[6] giving the result of a long investigation into the mind processes of the child. How does a child think, and what is the basis of his reasoning? Why does he think and say what he does? Why is his curiosity so easily satisfied (a habit Binet considered one of the features of imbecile mentality)? Why does he affirm and believe things manifestly contrary to fact, and how and by what steps is his incoherence gradually superseded by the logic of adult thought? According to Professor Piaget the problem of the child mentality has been thought of as one of quantity, whereas he states it as a problem of quality. If the child mind appears opaque to adult observation it is because it belongs to a different kind of thought—autistic or symbolic thought—which the adult has long since left behind him or suppressed. Piaget's method has been to let the child talk and to observe the manner in which his thoughts unfold, allowing him to take the lead, and to talk freely with a minimum of questioning. It would seem that up to a certain age the child thinks and acts more egocentrically than adults; children share each other's intellectual life less than we do. When they are together they seem to talk to each other a great deal more than we do about what they are doing, but for the most part they are only talking to themselves. The adult keeps silent far longer about his action, and his talk is almost always socialized. The book is most suggestive and informative, and worthy of close study by teachers and psychologists.

Dr. GANS has sent us the first volume of his monumental work on the histology of diseases of the skin.[7] Although it contains over six hundred pages and is copiously illustrated, it deals only with atrophies, dystrophies, and inflammatory changes due to bacterial infection. The effects of mycotic infections, animal parasites, congenital abnormalities, and tumours are left for future volumes. In contrast with Unna's work on the same subject published in 1894, which was founded principally on that author's personal researches, the present treatise, owing to the great increase of knowledge of the subject, consists very largely of a critical summary of the results obtained by numerous workers. When necessary, however, the author, who is a highly skilled pathologist himself, indicates his own position when debatable points come under discussion. The illustrations, the majority of which are coloured, are exceedingly clear and helpful, and many of them are drawn from the author's own preparations. The bibliography is full, and well arranged for easy reference. In fact, Dr. Gans has produced a book which deserves the attention of every dermatologist and clinical pathologist, and we hope that the volumes promised for the future will not be unduly delayed.

The first volume of the second edition of Professor TANDLER'S textbook of anatomy[8] comprises the sections of osteology, arthrology, and myology—sections which, if they present little scope for originality in the text, are not so unpromising in regard to illustrations; these, reproduced on heavy paper, form in fact the main feature of the volume. As is usual in German textbooks, the mechanics of the various joints are considered at greater length than in English textbooks, while—another generic difference—the paragraphs introductory to the sections are written from a broader general biological standpoint. As an indication of the size of the work it may be stated that the space allotted to each section is slightly less than that given to the corresponding section in *Gray's Anatomy*.

For the last seven years each annual issue of *Burdett's Hospitals and Charities*[9] has been subjected to careful revision and condensation. To a great extent the aim, which is to provide a more convenient though still comprehensive register, has been attained for the time being, and in the thirty-seventh issue, which has just appeared, there is no radical alteration, though it is larger by some sixty pages than last year. A newcomer in its contents is a short statement about the central bureau of hospital information, which is now conducted by the Incorporated Association of Hospital Officers, at 28, Bedford Square, W.C.1. This bureau, which was established in 1925, works in co-operation with the Information and Service Branch of the Charities Board of Victoria, the Hospital Board Association of New Zealand, and the Lord Mayor's Hospital Fund of Melbourne. The hope is expressed that further institutions of this kind will appear in other Dominions and outside the Empire. The review of the conditions of voluntary hospital finance indicates that there is steady progress towards a co-ordinated system of hospital services, which will enable the individual units to function more effectually. The directory of institutions includes universities, colleges, and schools; hospitals in the Empire and in foreign lands; educational and charitable funds and institutions; nursing associations throughout the world; and periodicals in the United Kingdom dealing with medicine and allied subjects. As a reference book in these respects this year-book retains its unsurpassed value.

The *Minutes of the General Medical Council and of its Various Committees*[10] for the year 1926 have now been published with fifteen appendixes in a volume which includes the customary detailed reports of the two sessions of the General Medical Council and those of the English, Scottish, and Irish Branch Councils. Sir Donald MacAlister's two presidential addresses, which were published in our columns when delivered (SUPPLEMENT, June 5th, 1926, p. 205, and November 27th, p. 225), are also printed here. The longest of the appendixes comprises the interim report of the Education Committee on the progress made throughout the country towards the readjustment of the medical curriculum in accordance with the resolutions adopted by the Council on May 26th, 1922, which came into force on January 1st of the following year. The *General Index* to the Minutes of the General Medical Council and of its Executive and Dental Committees, and of its three Branch Councils, from 1903 to 1926, has also been published. It relates to volumes xl to xliii of the *Minutes*. The plan of previous editions has been followed, and each subject is fully indexed, the references being arranged chronologically, in many cases special subheadings being inserted. Since 1909 this useful work of reference has been kept standing in type and brought up to date from year to year, but in the interests of economy a number of entries are annually curtailed where experience shows that this can be done without impairing the usefulness of the index.

[6] *The Language and Thought of the Child.* By Jean Piaget, Professor at the University of Neuchâtel. Preface by Prof. E. Claparède. Translated by Marjorie Warden. International Library of Psychology, Philosophy, and Scientific Method. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1926. (Demy 8vo, pp. xvii + 246; 2 figures. 10s. 6d. net.)

[7] *Histologie der Hautkrankheiten.* Von Dr. med. O. Gans. Band I. Berlin: Julius Springer. 1925. (Pp. 653; 254 figures. G.M.135.)

[8] *Lehrbuch der Systematischen Anatomie.* Von. Prof. Julius Tandler. I Band, Zweite Auflage. Leipzig: F. C. W. Vogel. 1926. (Imp. 8vo, pp. viii + 467; 352 figures. M.36.)

[9] *Burdett's Hospitals and Charities, 1927.* Founded by Sir Henry Burdett, K.C.B., K.C.V.O. Thirty-seventh year. London: Faber and Gwyer, Ltd., the Scientific Press. 1927. (Demy 8vo, pp. xiii + 1058. 17s. 6d. net.)

[10] *Minutes*, 12s.; *Index to Minutes*, 7s. 6d. London: Constable and Co., Ltd. 1927.

The Dance of Çiva: Life's Unity and Rhythm,[11] by COLLUM, belongs to the "To-day and To-morrow" Series, which are described as written by some of the most distinguished English thinkers to provide a stimulating survey of the most modern thought in many departments of life. The Eastern dance of Çiva, a representation of which forms the frontispiece, symbolizes life and death in a rapidly turning wheel, on the top of which a rather weird and scantily clothed female figure is represented as dancing. Written in what some may consider a clever style, with hints of underlying learning, it appears to argue that Western knowledge and culture are inferior to the Oriental. The medical profession comes in for reproaches which, if it reads them, it may accept with chastened resignation.

[11] *The Dance of Çiva: Life's Unity and Rhythm.* By Collum. To-day and To-morrow Series. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1927. (Fcap. 8vo, pp. 94; frontispiece. 2s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Ephedrine.

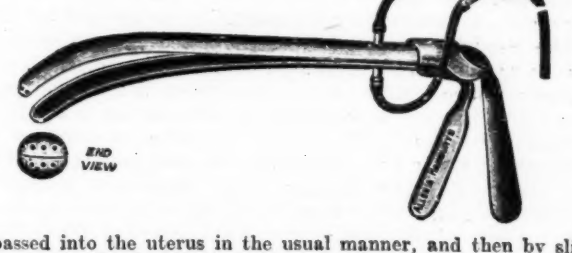
EPHEDRINE is obtained from the Chinese drug Ma Huang, which has, it is said, been used in China since 3200 B.C. The active principle, ephedrine, has recently been introduced into clinical medicine; its full chemical name is β-phenyl-β-hydroxy-α-methyl ethyl methylamine. The drug has been introduced to Western medicine by the researches of Read, Chen, and Schmidt of the Peking Union Medical College. Ephedrine is a sympathetico-mimetic amine, and therefore its pharmacological action is very similar to that of adrenaline, but ephedrine has the great practical advantage over adrenaline of being a stable compound that produces an effect lasting for an hour or more when given by the mouth. It produces powerful mydriasis when instilled into the conjunctiva, and when given by mouth is followed by a rise of blood pressure, which commences in about half an hour and lasts for several hours. Ephedrine has been used with success in place of adrenaline in the treatment of hay fever and asthma. The value of adrenaline in therapeutics has been limited by the fact that it cannot be given by mouth and has a very transient action. Neither of these objections appears to apply to ephedrine, and the drug ought to prove of therapeutic value in a number of different ways. The dose of ephedrine is from 1/2 to 2 grains. The drug has been prepared for clinical use by Messrs. Burroughs Wellcome and Co. and also by the British Drug Houses.

Concentrated Scarlet Fever Antitoxin.

The Wellcome Physiological Research Laboratories have produced an interesting new product—a concentrated scarlet fever antitoxin. It has been known for a few years that injection of the *Streptococcus scarlatinae* into horses resulted in the formation of an antitoxin, but progress was hampered by the fact that no animal test was known by which the activity of the product could be measured, and all tests had to be made on human volunteers. A test on rabbits has been discovered that is believed to be satisfactory, and this has rendered possible the production of concentrated serum. The dose recommended is from 20 c.cm. in a severe case up to 50 c.cm. in a very severe case. The antitoxin has proved valuable in a number of trials, but it cannot be expected to produce any direct action on the septic complications of scarlet fever. It is, of course, obvious that a considerable time must elapse before it is possible to make any certain estimate of the clinical value of a remedy of this character. The antitoxin is supplied by Messrs. Burroughs Wellcome and Co.

Uterine Douche Dilator.

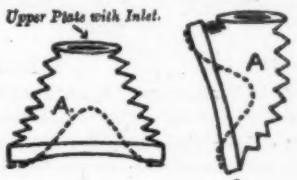
Dr. J. E. HEPPER (Brenchley, Kent) has devised an instrument for rendering uterine lavage more effective. The uterine douche dilator shown in the illustration is made in two halves, which, when closed, resemble an ordinary uterine douche. Each half is hollow and is perforated at the distal extremity, so that fluid will pass through it and be sprayed out at the end. The douche



is passed into the uterus in the usual manner, and then by slight pressure on the handle the halves are made to separate. In this way the cervix is held open during the process of douching, thereby facilitating the passage out of the uterus of any foreign matter. The dilator is made by Messrs. Allen and Hanburys, Wigmore Street, W.1.

A Modified Ether Inhaler.

Mr. R. SHAFFER, M.B., Ch.B. (Manchester), has devised an ether inhaler with an adjustable outer chamber for use in conjunction with an open ether mask. "By the open ether method," he writes, "a vapour strength of 12 to 14 per cent. is attainable, and whilst this safeguards against overdose, it has certain disadvantages. Chief amongst these is difficulty in inducing anaesthesia and securing adequate muscular relaxation in powerful subjects. There is thus a tendency to resort to chloroform at a stage when its use is to be particularly deprecated. The necessary result can be obtained by ether alone if provision be made for concentration of the ether vapour. By the use of the apparatus here described the induction period is shortened and adequate muscular relaxation is easily obtained and the amount of ether used greatly reduced. The carbon dioxide in the patient's expired air is conserved and acts as a stimulus to breathing and prevents shock from acapnia. The chamber can be used in conjunction with the vapour method, or, if desired, can be converted into a closed inhaler by the adjustable cover. Being adjustable, it is equally efficient whether the head be in the medial or lateral position. The apparatus consists of (1) an upper metal plate with a central aperture through which the ether is dripped; (2) a lower base plate fitting over the Schimmelbusch; (3) tubular bellows attached above and below to the plates, enabling the upper plate to be kept horizontal irrespective of the angle of the mask and base plate. Anaesthesia is conducted by the ordinary drop or vapour methods, and the appliance provides an efficient secondary chamber for the concentration of the ether vapour and conservation of the carbon dioxide. The aperture being always at the top of the chamber, irrespective of the position of the patient's head, the vapour is retained by its own weight, and complete conservation is obtained by closing the cover. Since almost all the ether is actually inhaled by the patient, instead of being disseminated into the atmosphere, a great saving of ether is effected. In Manchester the apparatus has been used with success in powerful, muscular, and alcoholic subjects in whom the open method and semi-open methods have failed to produce adequate muscular relaxation. The model used was made by Messrs. James Woolley, Ltd., Manchester.



Diagrammatic illustration of the apparatus. 1, Position at beginning of induction. 2, Position during the operation. The Schimmelbusch shown by dotted line. A, A, Outer chamber of ether surrounding the Schimmelbusch in both positions.

INTERNATIONAL OPHTHALMOLOGICAL CONFERENCES.

AT the meeting of the convention of English-speaking Ophthalmological Societies held in London in July, 1925, the President, Mr. E. Treacher Collins, was invited to appoint a committee of five to obtain the co-operation of ophthalmologists of all countries for the promotion of international ophthalmological congresses. Early in October this committee sent out a general notice to ophthalmological societies and ophthalmologists in all parts of the world, asking them to nominate two delegates from each country to confer on the question of the re-establishment of international congresses, and on other matters of international ophthalmological interest. The response to that notice has been widespread; already all the principal countries of the world have indicated their approval of the project, and, in the great majority of cases, have named their delegates. The provisional arrangement is that the committee shall, in response to an invitation from the Netherlands Ophthalmological Society, meet at the Hague on Tuesday, July 12th. Mr. E. Treacher Collins will attend as convener of the conference. The delegates nominated are:

Argentine: Professors Enrique B. Demaria and Raúl Argañaraz.
Austria: Dr. Adalbert Fuchs and Professor Dr. Josef Meller.
Belgium: Drs. Henri Coppez and Léon Weekers.
Bulgaria: Professor C. Pascheff and Dr. Slavoff.
China: Dr. T. P. Lee.
Czecho-Slovakia: Dr. A. Elschnig and Professor Leser.
Denmark: Drs. K. K. K. Lundsgaard and Chr. F. Bentzen.
Finland: Professor V. Grönholm and Dr. Y. G. Lindberg.
France: Drs. Morax and Terrien.
Germany: Professors Axenfeld and Wessely.
Great Britain: Sir J. Herbert Parsons and Mr. Leslie Paton.
Holland: Professors G. F. Rochat and J. van der Hoeve.
Hungary: Professors Emile de Grósz and L. de Blaskovich.
Japan: Professors S. Ishihara and Oguchi.
Norway: Professor Hagen and Dr. Malling. Substitutes, if necessary, Drs. Giessing and I. Schiötz.
Rumania: Drs. C. Pandelescu and N. Rásvan.
Spain: Drs. M. Marquez and F. Poyales.
Sweden: Professors Fritz Ask and Albin Dalén.
Switzerland: Professor J. Gonin and Dr. Ernst Pflüger.
United States: Drs. G. E. de Schweinitz and Arnold Knapp. Substitute, if necessary, Dr. Walter R. Parker.

The following countries have intimated their intention of taking part, but have not yet nominated their delegates: Cuba, Italy, Poland, and Jugo-Slavia. No reply has, so far, been received from Brazil, Chile, Egypt, Greece, Peru, Portugal, Russia, and Venezuela.

A MEDICAL REVIEW OF SOVIET RUSSIA.*

V.—THE MEDICAL PROFESSION, SOVIET SCIENCE, AND SOVIET SANITATION.

BY

W. HORSLEY GANTT, B.Sc., M.D.

(Formerly Chief of the Medical Division of the American Relief Administration, Leningrad Unit.)

PART III.

WORK AND ORGANIZATION OF THE PUBLIC HEALTH DEPARTMENT.

As the public health department (Narkomzdrav)† in Russia is an innovation of the Soviet Government—there was none under the Tsar—its organization and work merit some description.

The Narkomzdrav is under central control and in close relation with the other branches of the Government. The Commissar (Minister) of Health, Dr. N. Semashko, is also a member of the "Tsik"‡ or Central Executive Committee, which constitutes the pinnacle of power in the Soviet Government, having for its other members the other people's commissars (Ministers), Zinoviev, Trotsky (formerly), Lunacharsky, Rykoff, etc. Each State has a public health department, or Gubzdrav, at whose head is usually a Communist doctor having control of the public health affairs of his district and responsible to the central authority.

The work of the Narkomzdrav is divided among departments, each administered by a competent physician: (1) sanitary-epidemic, including sections for tuberculosis, syphilis, malaria, etc.; (2) therapeutical; (3) department of sanatoriums; (4) war sanitation; (5) railroad and steamship sanitation; (6) maternity and child welfare; (7) care of youth, including departments for athletic sports and physical culture; (8) control and organization of scientific research work. Practically all of the medical work in Russia is under the Narkomzdrav, but the medical schools are under the People's Commissar of Education, Lunacharsky. The post-graduate courses for doctors, however, are under the Narkomzdrav.

The work of the various departments is unified and co-ordinated by the central control and frequent conferences. It has obvious advantages over the former poorly organized work under the Tsar. Professor A. A. Vladimiroff, director of the Institute of Experimental Medicine, said: "Under the old system, that now being done by the Narkomzdrav was inefficiently handled by fourteen different organizations, which had no connexion one with the other." Each department of the Narkomzdrav has a scientific section with laboratories for research to direct the practical work. For example, the tuberculosis section has a central scientific institute in Moscow under which are many branch institutes in different parts of Russia. These laboratories are not fully established in all the departments, and some years will be required for the complete elaboration of this new plan.

Dr. Semashko, the head of the Narkomzdrav, who has the twofold duty of being a Communist leader and of caring for the health of a territory occupying one-half of Europe and one-half of Asia, was a country doctor on the middle Volga (Samara) before the revolution. He is an energetic and efficient organizer. He has won the admiration of all, including even political foes, by his integrity and justness. In outlining his work to me, he said:

"The present tendency of our work is prophylactic and sanitary—education of the peasant and workman to care for himself. This was entirely neglected under the rule of the Tsar. The whole population will be brought under medical examination and sanitation, by means of our newly installed medical points throughout the country, and the polyclinic and dispensary. In these we have also a complete system for carrying on social welfare work."

To illustrate, I will outline the work of several of the departments of the Narkomzdrav.

The antituberculosis work is modelled on the Edinburgh scheme, and is indirectly indebted to Sir Robert Philip for its inspiration. Besides the organization of medical points, ambulatory, dispensary, and polyclinic groups designed to care for prophylaxis, treatment, propaganda, etc., there were organized in 1922 in every large institute a system of "cells" or units claimed to be original in Russia. They are made up of workmen—voluntary workers—who are members of the organization to which they belong. The units are of various kinds—tuberculosis, venereal, sanitation (ventilation, heating), maternity, etc. The work consists in the distribution of educational health pamphlets, the carrying on of public health campaigns, the detecting of the sick and bringing them to the physician, and so on. By thus shifting part of the responsibility on to the working man, he is taught to take an interest in and have a care for his own health. The principle involved is that of Dr. Semashko: "The health of the working masses should be in the hands of the workmen." Patients detected by the medical units are sent to the ambulatories, which exist in every factory and important institution, for first aid and preliminary examination, and if more attention is needed, the physician sends them on to the polyclinic or dispensary. Each dispensary consists of a medical and a social section. The latter investigates homes, sanitation, registers social and infectious diseases, and carries on educational propaganda. Separate departments exist for children, the youth, tuberculosis, venereal disease, obstetrics, etc.

In connexion with the dispensary, polyclinic, and medical "cells" are the Councils of Social Help, consisting of the staff of the dispensary and of representatives of trade unions, factories, schools, and Government departments. Their duty is to provide help for the individual patient.

The following is a quotation from Professor A. A. Vladimiroff, to whom I am greatly indebted for other explanations in regard to public health work in Russia.

"Before the revolution there was no systematic fight against tuberculosis in Russia. In 1918 there was organized for the first time a special department for tuberculosis in the Narkomzdrav. Once a year there is a tuberculosis week; the newspapers, schools, museums, cinemas, present the subject to the public; pamphlets and posters are distributed. Educational propaganda is now one of the chief factors of the work."

Dr. Semashko, in commenting on the work against syphilis, said to me:

"Prostitution, which is one of the greatest causes of syphilis, has been officially prohibited by the Soviet Government and is punishable by fine. There are now no houses of prostitutes in Russia. A vigorous campaign is to be made again this autumn against venereal disease. Women's organizations are finding employment for the prostitutes. Although there are still some places in Soviet Russia where syphilis is very prevalent, there is less in the Red Army than there was in the Tsarist Army."

Malaria, now three times more frequent than in pre-war times, is demanding the attention of several branches of the Soviet Government. Before the revolution there was no systematized campaign against this disease. The methods enforced under the initiative of the Narkomzdrav are: (1) obligatory registration by card of the sick; (2) the establishment (in 1922) of an institute in Moscow for professional study of malaria with branch institutes in the large cities; (3) the opening of 113 antimalarial stations between 1921 and 1925; these constitute the primary units, and consist of dispensary, a small section for clinical observation, a laboratory, and a museum for sanitary instruction; (4) direction of the work by a central commission in Moscow with subcommissions throughout Russia; (5) compulsory co-operation of the other Government departments; (6) propaganda by instruction in the schools, cinemas, newspapers, and factories; (7) exemption of quinine from taxation and the distribution of a certain amount free (10,000 kilograms in 1923). In 1922, 8,000 kg. of quinine were imported; in 1923, 12,000 kg.; in 1924,

* Previous papers on medical and scientific work in Soviet Russia by Dr. Horsley Gantt were published in the BRITISH MEDICAL JOURNAL in 1924: I, A Review of Medical Education in Soviet Russia, vol. i, p. 1055; II, Hospitals and Health Conditions, vol. ii, p. 336; III, Scientific Work, vol. ii, p. 533. The first part of section IV, on "Change in type and incidence of disease," was published on August 14th, 1926, p. 303; Part II of this section was commenced on October 23rd (p. 747) and concluded on October 30th (p. 802). Part I of Section V was published on January 29th, 1927 (p. 198), and Part II on February 5th (p. 244).

† Narkomzdrav = official abbreviation for Narodny Kommissariat Zdravoochranenia (People's Commissar of Health).

‡ Tsik=abbreviation for Tsentralny Ispolnitelny Komitet.

60,000 kg.; but, according to Dr. Dobreitzer, four times this amount was needed.

The physico-therapeutical section of the Narkomzdrav was established in 1924. Dr. N. S. Zvonitsky, its chief, described its work to me as follows:

"During the war four physico-therapeutical institutes were built, but now we have over a hundred, and in the next two years we plan to build fifty more. We have received one million roubles from the central Government for this, and we shall receive three times this amount from the local governments where they are erected. Three million treatments were given in 1924. Our work is chiefly with the factory employees. In villages where we have no institutes we are beginning to teach the peasants to make use of natural agencies, as sun and air baths. The plan is being evolved by a central commission in Moscow for the whole of the U.S.S.R."

Dr. N. Kishkin, formerly Minister of the Interior under Kerensky, and now chief of the health resorts for the whole of Russia, said (1925) of his work:

"After the revolution we have many more diseases in Russia than formerly, and diseases that we never had before. The order of occurrence of these in our sanatoriums is: tuberculosis, bone diseases, nervous diseases, mostly functional, and stomach diseases. During the famine we had markedly fewer stomach ailments than now. The occurrence of syphilis this summer (1925) in our health resorts was 1.1 per cent. of the total number of patients—a decrease over previous years.

"We are doing ten times as much prophylaxis as before the war, through our tuberculosis and venereal institutes and dispensaries. We are doing less treatment because of the lack of drugs, equipment, and money. But the work is progressing. Although we have had workers in our sanatoriums for four years, we have had this year for the first time many thousands of peasants, and will have more next year." [The sanatoriums have been almost exclusively for workers and Communists, who receive maintenance free of charge.] "Many of our palaces are now turned into sanatoriums."

When I asked him about the relative position of scientific work in his department, he said:

"We formerly had no commissariat for health and no scientific work in the sanatoriums. For two years scientific institutes have been attached to the health resorts. There are central parent institutes in Moscow, where laboratory specialists work during the winter in conjunction with our therapists, planning the work for the summer. There are balneological, hydrological, and climatological sections at work. Before the war the sanatoriums were private, and the best doctors did not have charge of them; now the foremost surgeons and physicians are sent from Moscow, Petrograd, etc., during the summer to carry on the work."*

Care of Youth: Athletics.

After the revolution, children's homes, intended to care for the entire child population, were instituted, but these have been abandoned, so that there remain only homes for certain organizations, such as those for the orphans of peasants and workmen. Their condition is remarkably good compared to what it was when I visited them three years ago (1922-23). Besides the drilling in Marxism and antireligious formulae, the inmates are being taught personal hygiene and given systematic scientific instruction. This type of institute is entirely new in Russia.

In old Russia there was a lack of almost every form of sport. In the short space of three or four years its development has been phenomenal; athletics are now general in the large cities and institutes, and are spreading all over Russia. I have seen in villages two thousand miles away from the great centres boys playing football; and in the large cities great numbers of boys and girls engaged in football, games, rowing, swimming, and foot races—many more than there were two years ago.

The Highest Soviet of Physical Culture is under the control of the Narkomzdrav and of the Narkompross (Department of Education). It has charge of physical culture in Soviet Russia. Mr. H. A. Anderson, of the European Student Relief, who has been responsible for the introduction of physical culture in the universities, has given me the following account (October, 1925):

"Physical culture is compulsory (on paper) in every school, from the lowest to the university, but is not carried out on account of the lack of funds, leaders, and programme, except in the large cities. In the whole country there is not a modern gymnasium, an indoor track, or an indoor public swimming pool.

"At first the Soviets allowed no competitive games, and tried to make the gymnasium supreme over sport, to agree with Marxian politics; however, this was impracticable, and now competitions predominate. There are two schools (Moscow and Leningrad) for training teachers of physical culture, with 600 students. The best physical culture is being done in the factories, where gymnastics is more general than in American factories, though not so well conducted as in the best American. School gymnastics are as yet poorly organized. Courses for physical culture are now, for the first time, conducted in Russia. One can judge of the progress of athletics by the record of the Russian soccer team, which ranks among the best three or four in the world, although this game was almost unknown in Russia six years ago. Other sports, however, have not developed so remarkably."

Propaganda.

One of the most successful efforts of the Narkomzdrav has been its propaganda for personal hygiene and against disease. I have seen placards of exhortation, not only in all public places, trams, etc., but in the reading rooms in small villages; and in the newly established peasants' and workers' clubs there are pamphlets and books on hygiene and infections. Several cinema films of educational and scientific value have been worked out. Among those which I have seen are "Abortion," explaining the dangers of irregular abortions; "Rejuvenation," explaining the Voronoff and Steinach operations; "Conditioned reflexes," dealing with the work of the Pavlov laboratories. These are shown to the general public. They contain scenes which, though entirely represented from the scientific point of view, would not be permitted in America—for example, full details of the birth of a child, sexual intercourse in animals, lunatics, etc. This shows both the naïveté and the freedom from prudery of the Russian mind.

Dr. Semashko, in commenting on the work of the Narkomzdrav to me, made the following observations: The present bad health conditions are largely the result of the lack of education dating from the imperial period and the effects of the famine. Prophylaxis by educating the people, which is one of the cardinal principles of the public health work at present, was forbidden under the rule of the Tsar. Trachoma and other such diseases were not combated then; there were no laws regulating working hours, nor rest homes for mothers, nor participation of workers in public health matters as at present, nor dispensaries. The death rate is now below that of 1913; infantile mortality, which was higher in Russia than in any other European country, has diminished from 25 per cent. before the war to 12 per cent. in Leningrad and 13.7 per cent. in Moscow; health officers are being sent into the villages; abortions, though legalized, are regulated, and are fewer than in other countries; there are now 1,699 country medical stations, against 1,338 before the war; the average radius of a doctor's practice is now 11.2 km. compared with 13.1 km. before the war; the Soviet Government gave 10,125,000 roubles in 1925 for the construction of hospitals and public health work. The campaign against prostitution illustrates the general trend of the work. "The battle against this social evil is against prostitution and not against the prostitutes. It proceeds on two lines: first, the relief of the unemployment of women and the prevention of vagrancy among women and children, and secondly, against houses of prostitution and their proprietors."*

Conclusion.

As a matter of historical interest I have described the past life of the Russian scientist. As regards the future, I have quoted the opinion of leading scientists both pro and con.

Scientific working conditions as well as general living have gradually improved during three years: for the last year there has been a marked improvement. There is no doubt in my mind, after nearly four years of intimate acquaintance with Russia, that the Soviet Government desires in every way to aid science. Its attitude, though coloured by the enthusiasm of the officials for Marxian politics, is comparatively liberal and generous, and is becoming more so. Though the Government is at present in financial straits, funds allotted to scientific work are being increased. There is a question, however, as to the extent to which their methods will produce practical results, in view of the

* The total number of patients at the health resorts is now less than before the war, but this is attributed to the need of repairs and the lack of money of the individual. Most of the beds are occupied by Government officials, members of unions, etc., whose expenses are paid by the Government or unions

* The account in the above paragraph is derived from personal interviews with Dr. Semashko, and also from the *Weekly News Bulletin* of the Society for Cultural Relations with Foreign Countries.

changed living and social conditions under which scientists have to work. They are now treated with favour, and though they have suffered it has not been on account of any direct action against them. Their present economical condition compares favourably with that of other countries, if one makes allowance for the difference in the standard of living in Russia. While there has been deep gloom and pessimism as to the future of science in Soviet Russia, there seems to be a slowly growing optimism.

The newly organized public health department—the first worthy of the name in Russia—has shown interesting and energetic developments under the able leadership of Dr. Semashko. The extreme conditions under which it has had to work make difficult a judgement of its efficiency.

In the next (and concluding) article of this series I shall give details of the work of some of the scientists of Russia.

TUBERCULIN IN THE PROPHYLAXIS AND TREATMENT OF TUBERCULOSIS.

THE control of an infectious disease may be attempted in two ways: first, by exterminating the germ which causes the infection; secondly, by immunizing, or raising the resistance of, potential sufferers from the disease. In practice both methods are usually carried out in a large number of infectious diseases. Thus in typhoid fever the system of notification, isolation, and disinfection aims at destroying the bacillus, and so preventing the spread of the disease; while antityphoid inoculation is designed to prevent exposed persons from being infected. Similarly with small-pox, in which the object is to render the whole community insusceptible; but in the event of a case occurring measures are taken for stamping out the freshly introduced germ. It is, perhaps, failure to distinguish between these two processes which has prevented victory in the various crusades against tuberculosis. What are called tuberculosis schemes are mainly concerned with an attempt to exterminate the tubercle bacillus. It is not far off half a century since Koch discovered the tubercle bacillus. With the recognition of the infectiousness of tuberculosis battalions of sanitary forces have been thrown into the attack. The main objective of all these forces has been to destroy the tubercle bacillus wherever found, or at least to confine its ravages to the infected. The ubiquity of the bacillus has stood in the way of the success of these offensive measures; and it is still possible to maintain that defensive measures of immunization are the true way to victory.

Modern procedure in dealing with tuberculosis consists in notification, sanatorium treatment, dispensary supervision, the establishment of colonies, disinfection, and the examination of contacts. Subsidiary measures are concerned with the milk and meat supply. The object of all these measures is to prevent the dissemination of the tubercle bacillus. They have had some success, but it is very far from being complete; so widespread is the disease that many doubt if it ever can be; and not a few experts in the disease hold that if the measures were successful the result would be a community intensely susceptible to chance introduction of infection. If they are correct it would follow that the only way to check the ravages of tuberculosis must be by some form of immunization, that the disease must be fought on lines similar to those which overcame small-pox, though the conditions in tuberculosis may not render necessary universal vaccination. But it seems evident that any scheme must have regard to the cure of persons already suffering from chronic tuberculosis, since they may disseminate the infection.

TUBERCULIN IN DIAGNOSIS AND TREATMENT.

When Koch first prepared his tuberculin it was with the idea of curing actual sufferers from tuberculosis. Later its use was extended to diagnosis, especially in cattle. The unfortunate results in early days in the human being prevented its adoption as a routine means of treatment. Nevertheless, tuberculin or methods based on the theory of its action have continued to find supporters, and the possibilities of some such method as a preventive procedure should not be neglected. At present there are at least three methods of treatment in existence for definitely raising the resistance to tuberculosis: vaccination with the bacillus by the method devised by Calmette and Guérin, applicable only to the newly born; the Spahlinger method, which has attracted a great deal of public attention, but has not yet been thoroughly tested by competent and impartial observers; and the tuberculin treatment at dispensaries, advocated especially by Dr. Camac Wilkinson. There is, of course, a preventive side to tuberculosis schemes, and general public health administration, by raising the general health of the people, and presumably, therefore, their resistance to tuberculosis, by better housing, better food, and better hygiene, must have had a considerable effect. Moreover, it has within its range the examination of contacts, by which means it is hoped to detect early cases and prevent the development of the disease. But notwithstanding the undoubted value of these measures, the fact remains that in many instances, however early the disease is detected, and however thorough the hygienic measures adopted, the patient goes from bad to worse, and treatment is of no avail.

THE SCIENTIFIC ASPECT OF TUBERCULIN TREATMENT.

We propose to state the views of Dr. Camac Wilkinson, not because we have any conclusive evidence that his treatment is of any more value than other forms of treatment, but because they form a connected and ingenious theory of the disease which, if true, should be helpful in research. Moreover, although they do not necessarily involve preventive immunization of the whole community, they contain a suggestion that prevention may be aided by rendering sufferers from the disease less dangerous than ordinary hygienic measures can make them.

According to Dr. Camac Wilkinson, acute tuberculosis occurs mainly in two classes of people—in children under 2 years of age, and in adults who have never been infected at all. In both cases the disease is very severe and is nearly always fatal. Very many people, however, are affected mildly, possibly through milk, after 2 years of age, but they have been able to overcome the disease, and they have done so by encysting the tubercle bacilli in a fibrous capsule. The process renders such persons immune to mild doses of infection, so that the majority go through life without any further manifestation of the disease. Dr. Wilkinson, we gather, holds that without this encapsuled focus there would be no immunity for them; but if by chance they meet with some massive source of infection at a time when their resisting power is lowered, they are very liable to become infected. These are the persons who provide the vast bulk of the cases of chronic pulmonary tuberculosis. Having originally had an infected focus they are comparatively immune, and do not suffer from acute forms of the disease, but meeting a massive infection when their resistance is lowered they become chronic tuberculous cases.

Dr. Wilkinson's next proposition is that tuberculin enables a diagnosis to be made at a time when physical signs are practically absent, and also when it is still doubtful whether the case is one of acute or chronic tuberculosis. According to his view a positive reaction to tuberculin indicates the presence of living tubercle bacilli in the body. In a patient who has reacted positively, a lessened reaction on later inoculation shows that the tissues are winning; an increased reaction indicates that the bacilli are winning. No reaction to tuberculin indicates that no bacilli are present. Consequently tuberculin, he holds, not only shows whether tubercle bacilli are present or not; it also discriminates between cases that are progressing and cases that are retrogressing, and is the only means of distinguishing the early stages of acutely fatal forms from the early stages of chronic forms of the disease. He believes, however, that tubercle bacilli cannot survive long in fibrous tissue.

THE USE OF TUBERCULIN IN TUBERCULOSIS.

Dr. Wilkinson's next assertion is that tuberculin is the best treatment in forms of tuberculosis which are amenable to any treatment. The therapeutic effect of tuberculin, he

says, is to favour fibrosis, which is the only process that can lead to anything that can be described as cure. The production of fibrosis leads to the disappearance of tubercle bacilli from the sputum; those that have not perished have become encysted, and so are rendered harmless. Consequently tuberculin treatment can be applied at a dispensary, the diseased process can be arrested in individual patients, and the bulk of them rendered free from danger to others; and the enormous costs of present tuberculosis schemes can be largely curtailed. Infectious cases are, he maintains, thus converted into non-infectious, and the risk of massive infection in the family is minimized or removed.

The point in Dr. Wilkinson's thesis which may prove most difficult of acceptance is his statement that to produce immunity in tuberculosis it is necessary that a focus of the disease should exist. According to Dr. Wilkinson an infant infected under 2 years of age almost invariably contracts an acute tuberculosis which is fatal. But after 2 years of age a mild infection may be contracted, the bacilli may become encysted, and the presence of this encysted focus of the disease will render the child more or less immune, but not completely so. If the tubercle bacilli, says Dr. Wilkinson, are destroyed in the focus, as probably often happens especially in the primary stage, the immunity slowly disappears and reinfection may occur, but not in an acute form. In these cases in middle life a massive infection may overcome such immunity as remains, and the patient may become an example of the common form of chronic pulmonary tuberculosis. It appears, therefore, that in Dr. Wilkinson's opinion a mild infection after 2 years of age may either be completely cured or may leave a fibrous encysted focus. In either case the patient is fairly well protected from acute forms of tuberculosis; but in both he is susceptible to the chronic form of the disease if exposed to massive infection. The completely healed person will not react to tuberculin, while a reaction is obtained whenever an encysted focus is present.

Dr. Wilkinson regards the disuse of tuberculin in the cure of the disease as due to errors in its administration. He asserts that he has never seen any harm caused by tuberculin when properly administered; and, as we have indicated, he regards it as by far the best and least costly treatment. Dr. Wilkinson's method of treating his patients is to begin by injecting a dose—generally 0.0002 c.cm. of T.A.F. or T.A.—for diagnostic purposes. Any rise of temperature to 100° F. or over, coupled with a skin reaction and other special symptoms following the dose, is regarded as conclusive of the existence of living tubercle bacilli in the body. If the temperature rises to less than 100° F. further diagnostic doses of 0.001 c.cm., 0.005 c.cm., and 0.01 c.cm. are given. Dr. Wilkinson asserts that in thirty years' constant use of tuberculin he has never seen a bad effect from one or several test doses. On many occasions, on the other hand, he has been able to prove the existence of tuberculosis in people who had been regarded as free from the disease; while in others a previous diagnosis of tubercle has been shown to be erroneous.

When satisfied that the diagnosis of tuberculosis is correct, Dr. Wilkinson proceeds to treat the patient with tuberculin, beginning with quite small doses, increased at intervals of four to six days, until as much as 1 or 2 c.cm. are injected. The speed with which the dose is increased depends upon the reaction shown by the patient, who is taught to keep a record of his own temperature. The patient's weight, to increase of which Dr. Wilkinson attaches great importance, is recorded at each visit to the dispensary. After a course of treatment, lasting some months, patients are advised to present themselves a year later for further test doses.

What is Immunity to Tuberculosis?

It is not, however, with Dr. Wilkinson's claims to successful treatment of individual sufferers from tuberculosis that we are most concerned. Such claims are made by everyone who treats tuberculosis, yet tuberculosis persists. The questions which seem to be of importance are: First, does tuberculin cause fibrosis, and thereby shut off foci of infection? Secondly, if so, does it produce results sufficiently effective to render unnecessary some of the costly tuberculosis schemes? Thirdly, to what extent can its use be described as preventive? We gather that no claim is made that tuberculin can be used as a vaccine for immunization against tuberculosis comparable to the vaccination by attenuated living bacilli, for which good results in infants are claimed by Calmette. It appears, however, to be a fact that tuberculin is used in treatment, even in some sanatoriums; it seems to be very difficult to obtain definite statements as to the results; and it is clear that the questions we have asked can only be answered after proper investigation. In 1920 the Medical Research Council was asked by the Ministry of Health to investigate the claims made by Dr. Wilkinson, and Drs. G. T. Western, L. S. T. Burrell, and A. S. MacNalty were entrusted with the task. The report of these observers was at first regarded as confidential. But in the summer of 1923 Dr. Wilkinson published a pamphlet, entitled *The Tuberculin Dispensary for the Poor*, in which he criticized the report severely, and complained that the observers had made serious misstatements about his treatment, and had not given sufficient time to the investigation of his methods and his cases. In reply to this pamphlet the report was published in full in the *Lancet* on November 3rd, 1923.

In matters of scientific interest, especially in those which may have large public importance, it is unfortunate should prejudice or intolerance of criticism be allowed to affect the issue. The main conclusion of the observers was that "the method of tuberculin administration advocated by the Tuberculin Dispensary League does not appear to have claims over other methods of treating tuberculosis, either with or without tuberculin, which would justify its general adoption." There is no reason to doubt that the observers arrived at this conclusion after due deliberation on the material offered to them; and, from the point of view from which they investigated, it is quite possible that the conclusion was legitimate. What may be doubted is whether the observers had in mind the object which, perhaps, is alone of any real value to public health.

Let us briefly recapitulate the argument. All tuberculosis schemes are more or less ineffective in exterminating tubercle. We have ventured to suggest that in most schemes the objectives of extermination and immunization are not clearly distinguished. Among the schemes having an immunizing objective may be placed Dr. Wilkinson's. He alleges that large numbers of people are immunized in childhood, probably by bovine infection. This immunity is liable to break down later on when a patient is exposed to massive infection. If this occurs he proposes again to close the open tuberculosis by means of tuberculin, which promotes fibrosis. In doing so he asserts that he renders the patient less liable to infect others. The observers from the Medical Research Council appear to have confined their attention solely to the percentage of cures obtained by Dr. Wilkinson's treatment. They do not seem to have made any criticism of the scientific value of Dr. Wilkinson's views; and they made no comparative estimation of the merits and costs of the treatment. They found that the percentage of cures was no larger than that obtained by other forms of treatment. The question at once leaps to the mind, if the cures are the same and the costs to the community and also to the individual are less, what reasons are there for preferring the more expensive treatments to the cheaper? The observers do not answer this question, unless it is by leaving us to infer that tuberculin as administered by Dr. Wilkinson appeared to them to be useless, although they do not go so far as to say so. Indeed, they cannot have come quite to this conclusion, since they state that occasionally individual cases seem to derive distinct benefit from tuberculin treatment. They found that Dr. Wilkinson succeeded in immunizing his patients to large doses of tuberculin, but that there was no evidence that he immunized them to tuberculosis. Yet in the next paragraph, referring to patients who had had "hygienic" treatment as well as tuberculin, they say that early recognition and putting the patient under hygienic conditions rank as *equal* with, or as more important factors than, tuberculin in the arrest of the disease. We have confessed that we had no evidence that Dr. Camac Wilkinson's tuberculin

treatment is of any more value than other forms of treatment in individual cases of tuberculosis. What we cannot gather from the report of the Medical Research Council's observers is whether it is of less, or no, value. Above all we find in that report no definite challenge to the views on tuberculosis held by Dr. Wilkinson.

Seeing that offers of assistance have been made to M. Spahlinger for the purpose of testing his views, which, so far as we understand them, have a certain general resemblance to those of Dr. Wilkinson, we think it would be justifiable to ask the Medical Research Council or the Ministry of Health to undertake further investigation of the tuberculin dispensary treatment, especially in its scientific aspect. The questions to which answers might be sought are: Is it true that tuberculin as administered by Dr. Wilkinson produces no ill effects? Does tuberculin cause fibrosis around tuberculous foci? If so, can the effect be produced in a sufficient number of patients to lessen the dangers of infection to others? Is tuberculin of use for diagnosis in the human being? If the answer to these questions is in the affirmative, the final question is whether the use of the treatment is sufficiently effective to relieve the country of some of its burdensome expenditure on tuberculosis. If the answer to the questions is negative, the tuberculin dispensary patients might profitably be directed to other forms of treatment.

PNEUMONIC PLAGUE.

EPIDEMIOLOGY, DIAGNOSIS, AND TREATMENT.

A Treatise on Pneumonic Plague[1] by Dr. Wu Lien-Teh is a valuable recent addition to the series of publications issued by the Health Organization of the League of Nations. Its author, who is a graduate in medicine of Cambridge, is the greatest living authority on this form of the most devastating of epidemics. The arrangement of the work is excellent; full attention is paid to theoretical ideas and explanations, each tested by carefully planned and admirably executed scientific investigation, and followed by a cautious summing-up of the evidence and an unbiased statement of the conclusions which may legitimately be drawn. To each of the eight chapters is appended a full bibliography; in the bibliography to Chapter I, on the history of pneumonic plague, 561 references are given. This chapter is of great interest; in it are discussed the epidemics which have been, often on insufficient grounds, regarded as plague, and it is concluded that the first definite reference to the disease dates from the time of Justinian (A.D. 542). There is a table giving the incidence in different countries from the beginning of the fifteenth century (by mistake called fourteenth in the heading) to the present day, and another, even more important, stating the various places all over the world where outbreaks have occurred, naming the rodent and other mammals involved in the epizoötic, and their principal fleas, and stating the incidence of pneumonic plague. The author shows that in the vast majority of epidemics the earliest cases are bubonic, but that pneumonic cases occur with greater frequency at the beginning of pandemics. The first bubonic cases become quickly complicated with secondary pneumonia and appear clinically as if they were primary pneumonic plague. "Only at autopsy can the primary bubo be found."

The outbreak on s.s. *Calypso* in 1906 appears to have been at first of true pneumonic type, and in this instance rats and mice killed by fumigation were examined with negative results.

Chapter II deals with plague in wild rodents and its spread to man. The countries which the rodents inhabit are enumerated, with histories of outbreaks among them, and their distinguishing features, modes of life, the existence in them of natural plague and experimental infection, are discussed. Appended to this chapter is a list of those rodents which are known to suffer from spontaneous plague, the countries in which they occur, and the references to the literature where the record can be found.

The epidemiology of pneumonic plague is considered in three main sections—rise, spread, and decline. The first question which occurs is one that has not yet been fully answered; it has to do with the origin of pneumonic plague epidemics; they do not arise directly from epizoötics, but from human cases with secondary lung involvement. They may originate from bubonic cases by action of "extrinsic" factors, meteorological and social. This, however, does not explain the frequency of pneumonic cases in newly invaded areas at the start of an epidemic; examples of this are afforded by the black death, and by the pandemics in India, Japan, and elsewhere; it may be that climatic conditions enhance the susceptibility of the lungs to disease while bad social conditions impair individual resistance. Other explanations offered are that there is an "intrinsic" factor, that there are two strains of the bacillus (not confirmed by the Plague Commission), that there may be a special virulence, or a mixed infection, or, lastly, a "pneumotropism" of bacilli; in favour of this last there is some evidence. The relation of special flea-vectors is also considered; the *Xenopsylla cheopis* is said to account more for bubonic, the *Pygiopsylla ahalae* for pneumonic attacks; but this matter is complicated by the question of the species of rodent involved and the characters of the corresponding epidemics. Probably the human factor is the most important, because pneumonic plague usually spreads directly from man to man, and not by the intermediation of the flea; when dealing with the pathology of the disease and primary pneumonic plague in animals the author shows, moreover, that all are not equally susceptible to respiratory infection. After a description of the morbid anatomy, bacteriology, and diagnosis there follows a discussion of the site of entry, which is shown to be the deep portion of the respiratory tract.

Chapter V, on the clinical features and diagnosis, amplifies the statements found in modern textbooks, and the next chapter clears up several dubious points, and tells all that is known of the infectivity and immunity of this form of plague. It is shown that patients are non-infective in the very early stage, because cough and expectoration are absent, that even fairly close contact may not suffice to communicate infection, that the bacillus has a poor resistance to drying, and that, on this account, the evidence for dust-borne infection is weak. If the temperature is sufficiently low, dead bodies remain infected for considerable periods, even through the winter. There is no racial immunity or susceptibility; spread depends on the living conditions—bad ventilation, overcrowding, habits of indiscriminate spitting, etc. The possibility of carriers must not be forgotten; they probably play a very limited part in the spread of pneumonic plague.

Therapy and prophylaxis occupy the last two chapters; the penultimate dealing with personnel, the last with general prophylaxis and the management of epidemics. The value of serum, vaccines, and a combination of the two is discussed with sound and impartial reasoning. The management of epidemics is considered from the two aspects: Measures *within* the infected area, such as detention of cases, disposal of patients, management of contacts, evacuation of buildings, disinfection, disposal of corpses, etc.; measures *outside*, such as the establishment of a cordon, control or stoppage of traffic, and other like matters, while publicity, propaganda, and educational campaigns are not omitted.

Appended to the treatise are some good plates of rodents and of patients, microphotographs of the tissue changes set up, and stained sections of them; pictures of masks and clothing, ambulances, etc., while, as a frontispiece, there is an excellent reproduction of a plague lung. The bibliographies, as already stated, are very full; so is the table of contents, but this does not quite make up for the absence of an index. This is not only the best book on the subject of pneumonic plague which has appeared up to the present, but it will probably remain the standard treatise for many years to come.

[1] *A Treatise on Pneumonic Plague.* By Wu Lien-Teh, M.A., M.D., LL.D., Sc.D.; Litt.D. Geneva: Publications of the League of Nations. C.H. 474. III. Health. 1926. (6¼ × 9½; 40 figures. 20s.)

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HUNTER AND LISTER.

THE task set before a Harveian or a Hunterian Orator nowadays is no light one. His many distinguished predecessors must seem to him to have covered the ground so thoroughly as to leave little scope for saying anything new. Sir Berkeley Moynihan, the latest Hunterian Orator, nothing daunted by the difficulties of the situation, has drawn a parallel between John Hunter and his successor at a century's interval, Joseph Lister, which is of the greatest interest. If, as Timothy Holmes said in 1893, on the occasion of the centenary of Hunter's death, he was the "greatest man indeed who ever practised surgery," Sir Berkeley Moynihan was surely justified in his claim for Hunter and Lister together that they were the two greatest surgeons the world has ever known. Despite the deficiencies of his early education, Hunter was the first scientific and philosophic surgeon who approached his subject, as Lister did, by the way of physiological and biological experiment and investigation.

It is fitting that the latest panegyrist of these two great men should in himself fulfil Sir Jonathan Hutchinson's ideal of a surgeon as "a physician who operates," and should be so eminently well qualified to take a broad philosophic view of the progress and prospects of surgery. It was a happy inspiration which led him to couple in his oration these two heroes of modern surgery—the young Scot who left his native Lanarkshire in 1748 to join his celebrated brother William in London, and to become successively pupil, house-surgeon, and surgeon at St. George's Hospital, and the young Englishman who, like him, but with a difference, left his Alma Mater, University College, to become house-surgeon to Syme in Edinburgh, almost exactly a century after Hunter had filled a similar office in London. Both were natural philosophers and physiologists before they were surgeons, and both made revolutions in practice and founded schools of surgery. In his lifetime Hunter's fame was by no means commensurate with his merits, and only the elect realized his greatness, for his gift of exposition was poor, and he never acquired the power of clarity of expression. Ill health impaired his vigour and no doubt affected his temper for the last twenty years of his life, during which he felt the effects of that experiment which rendered him, in the words of Sir D'Arcy Power, "a martyr to science," and terminated his existence before he could receive his due meed of fame. Abernethy, who might be called an apostle of Hunter, and knew him well and admired him, wrote of him: "I was acquainted with Mr. Hunter at a period of his life when he must have greatly interested anyone who duly appreciated the results of his talents and labours, or who had any sympathy for the highly susceptible mind of genius, rendered still more so by excess of exertion and the perturbed feelings incident to bodily disease. He seemed to be conscious of his own desert, of the insufficiency and uncertainty of his acquirements, and of his own inability readily to communicate what he knew and thought."[2]

Lister, more fortunate in his intellectual equipment and training, and enjoying a much longer span of life, lived to see his teaching triumphant over prejudice, ill-judged opposition, and ridicule, until when he died, full of years and honours, the Council of the Royal College of Surgeons of England passed that worthy resolution in which it is truly stated that "He raised Surgery from a dangerous and precarious practice to a precise, safe, and beneficent Art, and in doing so, his name became renowned throughout the civilized world. . . . His gentle nature, his deep compassion, his imperturbable temper, his resolute will, his indifference to ridicule, his tolerance of hostile criticism, combined to make him one of the noblest of men."[3] To adopt the orator's striking metaphor, Lister has erected a great, complete, and permanent bridge over which we have all passed to triumphant successes in surgery. Hunter was forever building bridges, ambitious in design, firm in their foundations, but always left unfinished, as witness his experiments in embryology, in the transplantation of tissues and organs, in the preservation of life in the tissues, and on the sensitive plant, to mention only a few of his researches. Some of these bridges are being completed, and others doubtless will be, when the foundations laid by Hunter will be found sound.

If to-day the amount of ground covered by the ancillary sciences is so vast that no man can hope to possess an up-to-date knowledge of physiology, pathology, chemistry, physics, and surgery, as was possible in Hunter's day, then the surgeon must more and more often and more fully take into his counsels the experts in these branches of knowledge. Let no man think that in so doing the gain is likely to be all on one side. The pathologist and the physiologist may learn much from what the surgeon has to show them of the pathology of the living, on the importance of which Sir Berkeley Moynihan has elsewhere and at other times insisted, and on which he again insists in this oration. As he pointed out, Lister—although he did not use this phrase—well recognized the importance of this part of the subject when he devoted so much industry and intelligence to the study of inflammation. Surgery, in the orator's opinion, is a great weapon of research. Operations undertaken and conducted solely in the interests of the individual patient have resulted incidentally in valuable additions to our knowledge of normal anatomy and physiology, as well as of pathology, which could hardly have been gained by any other means.

We all hope we may flatter ourselves that we of the twentieth century have more open minds, freer from prejudice and with a wider outlook, than our predecessors of the nineteenth; yet it is probable that the surgeons and pathologists of the middle of the last century laid a similar flattering unction to their souls, although there are those now living who remember how hardly and how slowly Lister's principles won recognition in London. Their value once demonstrated, it might have been thought that they would have found ready acceptance. But it was not so. These principles were arrived at by Lister and by him alone. The work of Pasteur and his triumphs in general pathology were well known in this country, but Lister alone saw their bearing upon the problems of suppuration and sepsis, and applied Pasteur's discoveries in the hospital ward. This reflection should make us humble, and incline the hearts of the younger generation to follow the advice of Sir Berkeley Moynihan to profit by the great spiritual legacy left by such men as Hunter and Lister, and to avail themselves of that surgery which he describes as the most

powerful weapon of research. We look forward, with the orator, to the day when preventive surgery as well as preventive medicine shall have rendered unnecessary much of what is now familiar to us as surgery, and when our weapons of war—or rather, those of our successors and descendants—shall be laid aside as no longer needed. Sir Berkeley Moynihan's eloquent peroration must inspire all who read it with a spirit of hope and faith in the future of our art.

THE VOLUNTARY SYSTEM IN MEDICINE.

SOME prominence has been given in the daily press to a speech by Sir Kingsley Wood, Parliamentary Secretary to the Ministry of Health, delivered on the occasion of the opening of the new buildings of a convalescent home at Worthing. The speech, along with other interesting matter, contained two declarations of policy which are worth noting. Speaking with some appearance of authority (though in such matters it is difficult to be certain what amount of authority appertains to the utterances of a subordinate member of the Government), the Parliamentary Secretary said with regard to the hospital question that "the Government stood firmly by the voluntary system, and would do everything it could to encourage voluntary organizations and hospitals"; and he went on to declare that "the Government's policy was wholly opposed to the creation of a State medical service. It would not be in anybody's interest to take the work now being done by the medical practitioners of the country and put it into the hands of whole-time public servants."

The main reason for which these declarations will be welcomed by the medical profession is not that they remove any apprehension of an early and radical change of system in public health and hospital organization. No such apprehension exists. The defences against any such frontal assault on existing methods are secure. As Sir Kingsley Wood himself said: "One of the best signs of the time was that during the last two years the voluntary hospitals had demonstrated their vitality and their hold on the people of this country." These hospitals have so established themselves in the hearts of all classes in the community, givers and receivers alike, that any direct and deliberate attempt to change fundamentally the system of their governance and management would be emphatically condemned by public opinion. A similar statement is equally true with regard to any suggestion to impose upon large numbers of people in this country a system by which they would be provided with medical advice and treatment through whole-time State or municipal doctors rather than by means of private practitioners of their own choice. As Sir Kingsley Wood again said, "Nothing would be gained by such a course, and much would be lost."

Changes and extensions are, however, in progress or in contemplation in connexion with various health and hospital services. Some of these changes and extensions are urgently necessary, and will receive the whole-hearted support of the medical profession. The danger is lest, in this process of reform and enlargement, anything shall be done insidiously, almost unwittingly, to weaken the principles and traditions of voluntary hospital management and of private medical practice, which are now by common consent recognized as being of such vital importance to the health and social life of the nation. In changing the character or position of Poor Law hospitals, and in encouraging or sanctioning the extension of municipal or county hospitals of various kinds, the relation of these institutions to the existing voluntary hospitals is of the utmost possible moment. In making increased communal provision for the giving of medical advice and treatment to certain sections of the population, whether mothers and babies, school children, or dependants of insured persons and others in like economic position, the decision as to whether this shall be effected by municipal clinics and treatment centres which are, or have a tendency to be, staffed by whole-time medical officers, or shall be brought about by an insurance or other system in which the best features of purely private practice, including an effective freedom of choice of doctor, can without difficulty be incorporated, is perhaps the most vital of choices presented to the profession, the social reformer, and the politician. On professional and on public grounds alike there should be no hesitation in making it. The one method leads insidiously, but scarcely less certainly, to a whole-time State clinical service; the other can be used effectively to maintain all that the medical profession holds most essential and all that the public has learnt most to appreciate in its relations with members of the profession. It is because the declarations of the Parliamentary Secretary to the Ministry of Health have such an important bearing on these questions that they will most be welcomed; and they are of the greater importance if they can be taken as an official assurance that the principles thus enunciated will be applied by the Government in any legislative and administrative measures that it may propose or take.

DIVERTICULOSIS AND DIVERTICULITIS.

SEVEN years ago the Subsection of Proctology of the Royal Society of Medicine staged what is believed to have been the first set discussion on the subject of diverticulitis. The meeting was extremely well attended, and its immediate result was that diverticulitis ceased to be known merely as a sort of occasional by-product of the operating theatre or *post-mortem* table, but earned for itself a place in scientific medicine, with well defined symptomatology and pathology. But that discussion did more for medicine than merely to put diverticulitis in its proper place, for it set in train a series of investigations as to its causes, its early history, and its clinical course, of which only the last stage had previously been recognized and studied.

Last week the Subsection once again chose diverticulitis for discussion, and it soon became evident that the intervening seven years had been fruitful in results. Dr. Spriggs opened the proceedings by recounting the conclusions arrived at by himself and his colleagues at Ruthin Castle, and an international atmosphere was given to the discussion by the presence of the well known French surgeons Drs. Martel and Pauchet, both of whom addressed the meeting in fluent English, the latter supplementing his remarks by showing some of those splendid drawings for which his surgical contributions are so notable. Dr. Spriggs made it clear that the chief advances in our knowledge of diverticulitis are due to improvements in radiological technique, particularly as applied to the opaque enema, and he showed slides which had been taken from the same patient over a period of years in which it was easy to trace the progress of events from the early stage of multiple small diverticula to the final condition of chronic

inflammatory thickening of the bowel, leading to obstruction. It became evident from the figures and the *x*-ray slides how well founded was the suggestion that the term "diverticulitis" should be reserved for those cases in which secondary changes had become established. The much larger number of cases where secondary changes have not yet developed would then be classified as examples of diverticulosis.

When does diverticulosis become diverticulitis? This change is at once revealed by serial *x*-ray photographs following an opaque enema, and wherever inflammatory changes are occurring in the diverticula the normal peristaltic waves are lost—a fact readily demonstrated by superimposing one picture upon another and taking tracings. It appears to be agreed by all observers that, when once established, diverticulitis is always progressive, although a great deal may be done by careful treatment to delay the final complications of obstruction, pericolic abscess, and fistula. With diverticulosis, on the other hand, it seems that efficient medical treatment may avert indefinitely the onset of secondary changes, so that it is probable that increasing knowledge and experience will go a long way in the direction of diminishing the proportion of cases that come into the surgeon's hands.

Although, in a sense, the physician would appear to have it all his own way with diverticulosis and diverticulitis, it must not be supposed that surgery has stood still. Far from it; for as the nature and pathology of these interesting cases have become better understood, the surgeon has been able to develop his technique in such a way as to enable him to deal successfully with most of the complications that may arise when the early stages have been unrecognized or inadequately treated. Sir Charles Gordon-Watson, Mr. Mummery, Dr. Martel, and Dr. Pauchet all gave lists of cases in which a high degree of success had been obtained, and the latter described a most ingenious method of replacing by a piece of small intestine a portion of the descending colon excised for diverticulitis It seems evident, however, that whereas seven years ago diverticulitis was essentially a surgical disease, it has now definitely come within the province of the physician, and that in future it is only his failures that the surgeon will be called upon to treat.

TESTS FOR DRUNKENNESS.

A GOOD example of the work the British Medical Association does for the information, not only of the profession, but of the public—and in this instance for the better administration of justice—is afforded by the report on tests for drunkenness, which is published in full in the SUPPLEMENT this week. For several years a good deal of public attention has been aroused by the number of convictions of persons charged with drunkenness when driving a motor car, and a certain amount of apprehension was caused by the fact that in some of these cases, which were reviewed with the assistance of counsel, the decision of the magistrate was not sustained. In the autumn of 1925 the Association of Metropolitan Police Surgeons informed the British Medical Association that it had been considering the revision of the tests in common use, but had arrived at the conclusion that it would be better for the British Medical Association, which is representative of all shades of professional opinion, to take the matter up. The Council accordingly appointed a committee, containing some of its own members, two metropolitan police magistrates, and several police surgeons. It was well known that charges involving an allegation of drunkenness were also made in the police courts in a large number of other cases not connected with motor cars. The British Medical Association was concerned in two aspects of the position which had arisen: first, there was what may be called the clinical question—the diagnosis of drunkenness; secondly, it was aware that in a good many cases a regrettable conflict of medical evidence was disclosed. The committee, over which Major-General Sir William Macpherson presided, had from the first to take into consideration the fact that the symptoms produced by alcohol, as by other toxic substances, vary in severity, according to the size of the dose, and, possibly, the susceptibility of the individual. The mere fact that it was proved, or admitted, that some alcoholic liquor had been taken a short time before the occurrence of the circumstances which led to the charge was, in a country like this, where so many people are in the habit of taking alcoholic beverages, clearly insufficient. The committee studied the subject very thoroughly in all its aspects, and examined much of the voluminous literature which has grown up about it, including the practice and regulations in foreign countries. It examined also the tests in common use in this country to determine the fact that the accused person was "drunk," and came to the conclusion that there is no single symptom due to the consumption of alcohol which might not also be a sign of some other pathological condition. The committee attempted a definition of the word "drunk," which it considers "should always be taken to mean that the person concerned was so much under the influence of alcohol as to have lost control of his faculties to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time." The advice to the medical practitioner called in to such cases is that in the absence of any pathological condition a person may be declared to be definitely under the influence of alcohol if there is a smell of it in the breath or in the vomited matter, but only provided certain concomitant signs or symptoms are observed—namely, a dry furred tongue or excessive salivation, irregularities in behaviour, suffusion of the conjunctiva, coupled with an abnormal condition of the pupil, loss or confusion of memory, particularly for recent events, and of appreciation of time, hesitancy and thickness in speech, and tremors and errors of co-ordination and orientation. An interesting clinical observation which has been made by many police surgeons is that when alcohol in toxic quantity has been consumed the pupil reflex to ordinary light is absent, but that to a bright light the pupil will contract and remain contracted for an abnormally long time, indicating delayed reaction. The committee was not able to recommend the estimation, by analysis of the blood, urine, or cerebro-spinal fluid, of the amount of alcohol consumed. This is also the opinion of the Danish Medico-Legal Society, after consultation with the police. Such examinations are not practicable in the circumstance in which an allegation of drunkenness is ordinarily made. A medical decision must be reached within a short time, and the committee recommends that in ordinary cases any person accused of drunkenness should be able to rely upon being seen by a doctor, if he so desires, within half an hour of the time at which he is charged. After studying the procedure of the police in Great Britain, of the Royal Navy, and of the Army, and also in New Zealand, France, and the United States of America, the committee arrived at the conclusion that in order to obtain uniformity in the method of testing drunkenness some such form of certificate as that drawn up by the Danish Medico-Legal Society might with advantage be adopted when examining persons in this country. For particulars of the Danish method reference must be made to the report itself, where they are set out in an appendix. The Council of the Association has directed that the report should be printed separately and put on sale.

THE HUNTERIAN FESTIVAL, LONDON.

THE Hunterian Festival of the Royal College of Surgeons of England was held on Monday last, when the President, Sir Berkeley Moynihan, delivered the Hunterian Oration, which is published in the opening pages of this issue. Before the oration, at a private meeting of the Council, Princess Mary, Viscountess Lascelles, was admitted an Honorary Fellow of the College; she is thus the first woman to be placed on the roll of honorary Fellows, and the fourth member of the Royal Family whose name appears on that roll, the others being the King, the Prince of Wales, and the Duke of Connaught. She attended the oration wearing the academic costume of a Fellow. In the evening a dinner was given in the College Library, where a large company of guests was entertained. After the usual loyal toasts had been honoured and "The Memory of John Hunter" had been drunk in silence, the toast of "The Guests" was given by the senior Vice-President, Sir Cuthbert Wallace, who asked Viscount Lascelles to convey to Princess Mary the College's appreciation of the honour she had done it; she had thus set the seal of her favour on the action of the College in giving full rights to its women Fellows. In speaking of the guests he mentioned them in groups—the law, the arts, the public services, and the many members of the medical profession present. In conclusion he expressed the opinion that owing to the work of Lister the technical achievements of surgery had perhaps reached a limit, and that it would be necessary to turn away from the mere handicrafts of surgery to the collateral and ancillary sciences. Lord Riddell, who replied in a jocular vein, said that what the public wanted to know from the medical profession was, not what to avoid, but what diet to take in order to attain the intellectual eminence which he saw in so many of those around him. The toast of "The President and the Hunterian Orator" was given by Viscount Lascelles, K.G., who began by conveying a message from Princess Mary expressing her pleasure in receiving the honour conferred upon her that day. She looked upon it as setting the seal on the work she had attempted to do during the last six or seven years. She had begun her active career during the war, and had always been attracted to that part of social work which aimed at the alleviation of suffering. Lord Lascelles went on to speak of his long association with Sir Berkeley Moynihan in many movements in which they were both interested in the part of the West Riding where they both resided. The President, in an eloquent and moving reply, recalled how the family to which Viscount Lascelles belonged had consistently used its influence to promote the welfare of the Leeds Infirmary from the time of its foundation in the eighteenth century by the first Hey. He mentioned the succession of Heys as surgeons to the Infirmary and the high ideal possessed by the staff of that great hospital—an ideal which he had always endeavoured to maintain. The end of his own services to the Infirmary was approaching, but he had the satisfaction of feeling that he had helped to inspire his present colleagues, who would be his successors, and most of whom were his pupils, with the hopes for the future of surgery by which his own career had been actuated.

THE BRIGHT CENTENARY.

THE centenary of the publication of Bright's *Reports of Medical Cases*, the famous book which announced the discovery with which his name has ever since been associated, will be celebrated next July at Guy's Hospital. Richard Bright, who was born in Bristol in 1789 and graduated M.D.Edin. in 1812, took several opportunities which opened to him to visit many parts of Europe, including Iceland, and did not settle in London until 1820, when he was elected assistant physician to Guy's Hospital. He became full physician in 1824, and when he resigned in 1843 he was made consulting physician. As was stated by Dr. J. F. Payne in the *Dictionary of National Biography*, Blackall and Wells had pointed out that dropsy was in many cases connected with a special symptom—namely, that the urine was coagulable by heat, owing to the presence in it of albumin. But the two symptoms were not traced to their source until Bright, by his *post-mortem* investigations, ascertained that in all such cases a peculiar condition of the kidneys was present, and thus proved that the symptoms really were those of a disease of the kidneys. "The explanation," Dr. Payne continues, "once given seems as simple as putting two and two together, but the importance of the discovery is shown by the fact that no one before had suspected the kidney to be the organ implicated. It proved Bright not only to be an acute observer, but to possess the much rarer faculty of synthesis, which makes an observer a discoverer." The significance of Bright's synthesis was quickly understood in all parts of the world, and has perhaps rather obscured the fact that Bright showed his originality of mind in the description of many other diseases, especially those of the abdomen. Sir William Hale-White pointed all this out in *Guy's Hospital Reports* for 1921, and noted in particular that one book written jointly by Bright and Thomas Addison contained a description which Howard Kelly seventy years later said "could not be surpassed to-day" of the now common disease which in 1866 was named appendicitis by the late R. H. Fitz of Boston, U.S.A. Invitations to be present at the celebration have been accepted by many distinguished persons in all parts of the world, and the Royal College of Physicians of London will give a conversazione.

INDIAN PILGRIMAGES AND CHOLERA.

SIR LEONARD ROGERS'S recent paper before the Indian Section of the Royal Society of Arts on the forecasting and control of cholera epidemics in India was in part a recapitulation of the considerations he had addressed to the Royal Society of Medicine some months ago,[1] but he stressed more particularly the part played by fairs and pilgrimages in the occurrence of such epidemics. While deficient rainfall, he said, was a constant factor predisposing to cholera epidemics, the effect of the great pilgrimages could not be disregarded. His warning is timely, because 1927 is the year of the great Kumbh Hardwar fair, which takes place every twelfth year, and attracts pilgrims to the number of between one and two millions. The fair years of 1867, 1879, 1903, and 1915 were all marked by epidemic invasions of the Punjab from the endemic areas of the western United Provinces, and the Hardwar pilgrims were almost certainly the vehicle. In one of the fair years, 1891, the increased incidence was comparatively small, because the absolute humidity in that year was unfavourable to cholera spread. In other parts of India also pilgrimages and fairs were shown to be active agencies, as, for instance, in the dissemination of cholera over the Central Provinces from the surrounding areas, and in the Bombay Deccan. Discussing prophylactic measures, Sir Leonard Rogers said that much had already been done to diminish cholera in some of the large towns by the provision of good water supplies, but India was in the main a land of villages, and it would take centuries to improve village sanitation to the extent necessary to reduce materially the prevalence of this disease in India. A simple and effective measure, however, was available in anticholera inoculation. The numbers to be inoculated in any one district, even in the Kumbh year, would only be

[1] BRITISH MEDICAL JOURNAL, May 1st, 1926, p. 784.

a few thousand, and with a little organization every dispensary in the district could be utilized. As the breaking up of the pilgrimages consequent upon an outbreak of cholera was very inimical to the interests of the Hindu priests, the Government should be able to obtain their cordial assistance in carrying out this harmless measure. It was in the epidemic areas of the Punjab and Central Provinces that such a plan of protection was most essential, for those provinces owed their epidemics chiefly to their own pilgrim population visiting the cholera-infected areas and bringing back the disease with them. In the endemic areas themselves the problem was more difficult, but the principle was the same; and he held that no one should be allowed to attend the great fairs at Hardwar, Allahabad, Puri, and elsewhere without first being inoculated against cholera. The sensitization of the cholera vaccine, as worked out in Tokyo, had resulted in an efficient protection combined with an absence of all severe reactions, and this last would be an important point in dealing with the Indian populations. In a brief discussion which followed the paper, Sir Havelock Charles suggested that, before inoculation was made compulsory, the Government should have available a special staff of thoroughly trained men to carry it out. Major W. A. Justice mentioned that in Madras attention had been more or less confined to the provision of protected water supplies in places where the sacred festivals were held, and during the last twenty years this had made a material difference to the incidence of cholera. There was opposition, however, from the pilgrims to the protection and covering-in of the wells on their route. Sir Michael O'Dwyer, speaking as a former governor of the Punjab, said that matters of public health under the reform scheme were in the hands of an Indian minister, and his action in this matter, so important to the well-being of his people, would be one of the tests of the new constitution. Another speaker, Major-General D. Harvey, remarked that a large supply of cholera vaccine was being sent with the troops embarking for China for use if necessary before the cholera season, which began later in the year in Shanghai.

LUIGI ROLANDO.

DR. PIETRO CAPPARONI, in a recent historical sketch,[1] has given an account of an anatomist whose name is familiar to every medical student. Luigi Rolando was born at Turin on June 16th, 1773, where, on the death of his father, he was brought up by his maternal uncle, the learned priest Maffei. From the first he showed a special predilection for anatomy, and became the favourite pupil of Cigna. He also distinguished himself at an early date in clinical medicine and in natural science, particularly zoology. In 1802 he published a dissertation on the structure and function of the lungs in all classes of animals. On November 5th, 1804, he was nominated professor of practical medicine at the University of Sassari in Sardinia. At Florence, where he resided before taking up his appointment in Sardinia, he pursued advanced studies of anatomy with Mascagni and made the acquaintance of Fontana. In 1809 he published an essay on the true structure of the brain in man and animals and the functions of the nervous system, with illustrations which he had drawn and engraved himself. In 1814 he was appointed professor of anatomy at Turin, and during the next fifteen years his scientific output was considerable. He died of carcinoma of the pylorus, in 1831, at the age of 59. During the last years of his life he was physician to Maria Theresa of Austria. Rolando's scientific work was mainly anatomo-physiological and embryological. Though he devoted his attention particularly to the anatomy and physiology of the brain, he published also an important physiological study on the passage of fluids into the solid state, the formation of vegetable and animal tissues, and the vessels and heart, and two zoological works. Rolando is best known for his description of the fissure between the frontal and parietal convolutions which bears his name.

[1] *Bollettino dell'Istituto Storico Italiano dell'arte sanitaria*, November-December, 1926.

A PRIVATE HOSPITAL SCHEME.

THE directors of the Ladies' National Clubs, Ltd., propose to extend their activities to the provision of a private hospital and nursing home "where the best medical care and efficient nursing can be obtained at fees which gentlefolk of moderate means can afford to pay." A large house has been secured in South Kensington which it is intended to open for the reception of resident and non-resident patients. It is anticipated that each bed in a small ward will cost four guineas a week and private rooms six guineas and upwards; personal laundry, medicines, dressings, and operation room fee are extras. The hospital will be under the supervision of a medical superintendent, who will, when necessary, be able to procure for any member the services of physicians, surgeons, and specialists at modified fees: "Medical list will be sent on application." There will be a sister-in-charge with fully trained nurses under her. The managing director of the club will be the resident organizer. It is hoped that the hospital will be self-supporting, but it is not intended that it shall be run for a profit to the company. It is proposed to provide a guest-house close to the hospital so that members coming to London for medical advice or friends of patients may obtain accommodation. Attached to the preliminary prospectus, of which we have received a copy, is a printed slip giving the names of nine medical practitioners (all of high repute); there is a note that the list is incomplete, and written thereon is the statement, "Not for publication." The scheme is variously described as intending to provide a "private hospital" and "nursing home." Presumably what is really meant is a nursing home, for it is to have some thirty to forty beds. The home appears to be intended for the use of members of the Ladies' National Clubs, who are reported to number some sixteen hundred. The covering letter of the prospectus states: "Members of the clubs are being asked to contribute a fixed sum per annum (10s. 6d. and 21s.) for the upkeep of the hospital, to which they will have the right of admission on the payment of reasonable fees." This statement would indicate that the nursing home is a strictly private concern arranged for the convenience of the subscribers. The wording of the prospectus is, however, a little vague on this point. The policy of the British Medical Association on nursing homes is worth recalling in this connexion—it favours the formation of self-supporting public nursing homes for patients who, being ineligible for the voluntary hospitals, are yet unable to pay the customary professional fees as well as the charges usually made in private nursing homes. The management of such homes should be vested in a committee in which the local profession is adequately represented. Patients should be admitted only on the recommendation of their own doctor. It should be open to a patient to select any registered medical practitioner as his attendant. Modification of professional fees should be made only when there is a satisfactory representation of the particular circumstances of the patient. If this projected nursing home be for the convenience of the members of these proprietary clubs only, the foregoing provisions may not apply to it, since on this assumption they, as subscribers, are solely entitled to admission. But in some of the published accounts of the scheme in the lay press it is stated that

both women and men will be admitted to the home, which would appear to bring this scheme within the policy of the Association as given in these extracts. This is a matter which might well receive the consideration of the promoters of the scheme. On the face of it, the idea of providing for the emergencies that must arise in the large membership of this combination of ladies' clubs would seem to be admirable, but it is not clear that this is the sole field that it is proposed to cover.

SUBCUTANEOUS INJECTION OF B.C.G.

ON January 23rd Drs. Weill-Hallé and Turpin read before the Académie de Médecine a note on "pre-immunization" of the infant against tuberculosis by subcutaneous injection of B.C.G. (bacillus Calmette-Guérin). Pre-immunization,[1] it may be remembered, is defined as a vaccination comparable with that produced by vaccinal viruses, but with this difference, that it is bound up with the persistence of the vaccinating organisms in the lymphatic tissues of the immune subject. Calmette administered the vaccine by the mouth in three doses on alternate days within the first ten days after birth. This limitation to ten days was due to Calmette's belief that the intestinal mucosa of newly born animals easily absorbs bacteria, but loses this power in a few weeks. Drs. Weill-Hallé and Turpin found that certain infants from contaminated stocks did not benefit from pre-immunization by ingestion of B.C.G. through the intestinal mucosa. With the approval of Professor Calmette it was decided to try the subcutaneous method, already used for calves. The infants thus treated were carefully selected, were infants of tuberculous parentage, and were from 3 weeks to 9 months old. A single dose of B.C.G. was given, in the earlier cases 1 mg., in the later 1/4 mg., so that the number of bacilli injected was from 10 to 40 million, as compared with 1,200 million given by the buccal method. It appears that there was no general reaction from the injections, and no serious symptom arose. A nodule appeared at the site of injection about the third week, but there was no glandular enlargement. A cold abscess formed by the thirty-fifth or fortieth day. This began to discharge about the eighth week and lasted from two to three months, ultimately healing spontaneously with a punctiform scar. To avoid all fear of the phenomenon of Koch the tuberculin skin reaction was tested several times before the injection was given. After injection the reaction became fairly rapidly positive. One of the ten infants died some time after the injection, apparently from meningitis; but the observers had been unable to obtain particulars. The other nine infants had done well, notwithstanding in some cases exposure to massive infection. Drs. Weill-Hallé and Turpin hoped to be able to report later the minimum efficacious dose that should be injected subcutaneously, and the relative indications for the use of B.C.G. subcutaneously and by ingestion.

THE HOSPITAL PROBLEM IN CANADA.

IN his presidential address before the Manitoba Medical Association last September,[2] Dr. D. A. Stewart made some trenchant comments upon the present state of affairs in the Dominion as regards hospitals and the admission of patients thereto. He urged the need for more hospitals and better hospitals, with broader foundations and better ways of supporting them. Hospitals, he said, were needed for diagnosis and observation, and as retreats for a few weeks' rest for tired-out people, as well as for long periods of rest for chronic cases. Beds were needed also for longer convalescence, which might be both cure and prevention. Hospitals in the past had been quarantine stations for the protection of the community; now they were taking on the functions of community health centres. Just as the factory was the workshop taken out of the home, and the school the teaching of children taken out of the home, so the hospital was the sick-room taken out of the home. The hospital was as logical a place for the sick of the community as the school for its scholars. But there was no problem in social administration more difficult than the founding of hospitals and their conduct on a proper basis, so that they might welcome all, help all, yet hopelessly burden none and pauperize none. The tendency was to throw the whole responsibility upon the public purse, as "a sort of neighbourhood cow that everybody wants to milk and nobody wants to feed." Dr. Stewart recorded his belief that in Canada they had gone far enough in the direction of free treatment, with its tendency to make the individual negligent and forgetful of the fact that the primary responsibility for illness was his own. "Sickness is as often a fault as poverty is. . . . Every doctor knows that, in hard times especially, a differential diagnosis has often to be made between sickness and unemployment, or sickness and imagined sickness." Further, the working out of any scheme of treatment must not overlook the mental and moral factors. "To lose health is bad; but to lose moral stamina is worse. For a man to get out of hospital with legs and lungs healed, and body patched up, but moral backbone flimsy for life, is not a triumph but a tragedy." In Dr. Stewart's judgement a reasonable and workable way of paying the costs of illness might be found "in some general plan of more or less compulsory personal insurance under State auspices. . . . At any rate, the proper time to pay the costs of illness is while well and working, not while sick and spending. Such an arrangement would be a great boon, not only to sick people and the heads of sick families, but to hospitals and doctors as well. Both these unfortunately have to earn their livings from the sick, since the belief still prevails that they that are whole have no need of the physician, but they that are sick."

[1] Reference may be made to the leading article in the JOURNAL of August 21st, 1926, p. 353.

[2] *Canadian Medical Association Journal*, January, 1927, p. 94.

INFLUENZA.

THE mortality from influenza appears to be waning. In the great towns of England and Wales the deaths diminished last week from 818 to 759, and in London from 215 to 159. Excluding London from the total, the deaths of the last three weeks have numbered 473, 603, and 600. At the time of writing this note the detailed figures of notifications of pneumonia are not available, but the provisional figures suggest a considerable decrease in London and little change in the country as a whole.

LISTER DAY IN CANADA.

THE Lister Memorial Committee of the Canadian Medical Association has arranged that the second Listerian Oration shall be delivered in Toronto on April 5th, the anniversary of his birth. The committee has now proposed that April 5th should be selected every year as a Lister Day in every medical school, hospital, and health centre. One suggestion is that a lecture on Lister should be given in all hospitals, and that every convalescent patient should be invited to attend it. Another suggestion is that the medical profession in every locality should arrange for co-operation with the public health authority, and that Lister Day should be selected for making special appeals in aid of hospitals and of measures seeking to interest the public in the antituberculosis movement, the cancer campaign, and sanitation in general. A final proposal is that medical men should assist the educational authorities in observing the day in some appropriate way in the schools.

RHEUMATIC HEART DISEASE AMONG SCHOOL CHILDREN IN GLOUCESTERSHIRE.

(Preliminary Note.)

CONSIDERABLE attention has been given recently to the incidence of organic disease of the heart—particularly among the young—in various areas, and to the possibility of mitigating the results on the individual and on the community. The routine medical examination of school children offers exceptional opportunity for a preliminary investigation of the problem, and for an inquiry as to the significance of signs and symptoms pointing to organic disease of the heart due to recognized or unknown attacks of acute rheumatism or to other causes.

In different groups of school children the proportion found affected has varied very widely, the mean as the result of 121,898 examinations of entrants and leavers in Gloucestershire during fifteen years being 7 per cent. affected. Some of the observed differences are probably due to the personal equation of the examiner, but this by no means offers a full explanation, as the following table shows.

Percentage of Children presenting Symptoms consistent with Organic Disease of the Heart.

Year.	Entrants.		Leavers.	
	No. of Examinations.	Proportion Affected.	No. of Examinations.	Proportion Affected.
1915	4,598	2.9	4,193	2.6
1916	4,379	2.9	2,271	3.5
1917	4,763	5.5	718	10.3
1918	5,074	8.4	644	19.6
1919	4,671	10.2	2,827	12.8
1920	5,801	6.6	5,389	9.7
1921	4,550	6.8	4,014	11.6
1922	3,714	4.85	3,783	9.7
1923	3,546	4.55	3,794	9.5
1924	3,999	3.4	3,772	10.1
1925	4,633	2.4	3,579	7.2
1926	5,162	1.7	4,154	5.65

Percentage in Two Groups of Five Years.

Group.	No. of Examinations.	Proportion Affected.		
		Male.	Female.	Both.
ENTRANTS.				
1916-20	24,688	7.4	6.2	6.8
1921-25	20,542	5.1	3.7	4.4
LEAVERS.				
1916-20	11,849	9.0	10.5	9.8
1921-25	18,942	9.0	10.3	9.7

During the war years comparatively few children were examined as leavers, but in the last seven years there have been about 4,000 entrants and the same number of leavers examined each year. The medical personnel has been the same throughout the past eleven years, with the addition of a fifth examiner at the beginning of 1921.

From the above statement it would appear that with the same personnel and with no conscious variation in standard the proportion of children with signs pointing to organic disease of the heart has varied as follows:

(*a*) Between 1919 and 1926 the proportion of infants (at about 5 years of age) reported to be affected has fallen fairly steadily from 10.2 to 1.7 per cent.

(*b*) The numbers for leavers (at about 12 years of age) between 1919 and 1924 varied from 12.8 per cent. in 1919 to 9.5 per cent. in 1923, and between 1920 and 1924 ranged round 10 per cent. In 1925 the rate fell to 7.2 per cent., and in 1926 to 5.65 per cent.

(*c*) The incidence on leavers is about 50 per cent. heavier than on entrants.

(*d*) Among entrants, boys present these signs more than girls, while at the time of leaving the sex proportions are reversed.

It would therefore seem that for some reason the children born round about 1913 are particularly liable to present signs of heart trouble, and that this liability has steadily diminished among the children born subsequently.

It is proposed to make further investigation, but meanwhile the present observation appears to be of sufficient importance for immediate publication.

J. MIDDLETON MARTIN, M.D., D.P.H.,
County Medical Officer of Health and School Medical Officer.

England and Wales.

THE YORKSHIRE CANCER COUNCIL.

THE Yorkshire Council of the British Empire Cancer Campaign, to which Sir Berkeley Moynihan referred in his Hastings Lecture (SUPPLEMENT, January 29th, p. 29), had its origin in a meeting in Leeds in May, 1925. The Council consists of 130 members, representative of professional, business, political, and social life in the county; Viscount Lascelles is its president, and its vice-president is Sir Berkeley Moynihan, who is also chairman of the Medical and Scientific Committee. An Executive Committee has been formed, which contains members from the districts into which Yorkshire has been divided for the purpose. It has three subcommittees—a finance and general purposes, a medical and scientific, consisting of medical men from all parts of Yorkshire, and another for medical propaganda, containing both medical men and laymen. An appeal was made for £75,000 to establish a cancer research institute in Yorkshire; this amount was soon exceeded and the sum aimed at was raised to £150,000. In the West Riding sixteen districts were formed, each with its committee, honorary secretaries, and treasurers. Local committees have also been formed in the North and East Ridings. Some districts soon collected two or three times the amount at which they had aimed, and the fund will be closed next month. The cost of administration has been kept down to about 2 per cent., despite the fact that considerable sums have been expended on advertising and publicity. Sir Algernon Firth gave £20,000 for the establishment of a research institute in the University of Leeds; pending its completion temporary premises have been secured, and cancer research work is being carried on there by Professor R. D. Passey (the director) and a strong staff, comprising Mr. J. S. Young, *M.C.*, M.B., from the department of pathology, University of Glasgow, and Mr. H. J. Channon, M.Sc., from the biochemical department, University College, London. In addition, two cancer research fellowships have been awarded to Mrs. Bonser, M.D., and Mr. G. A. Collinson, M.Sc., Ph.D., formerly members of the department of pathology of the School of Medicine, Leeds. Work has already been begun; grants have been made also to the departments of physiology and of pathology in the School of Medicine, and to Dr. Cooper for *x*-ray investigations at the General Infirmary at Leeds. A grant has been made to the University of Sheffield towards the research work on cancer in connexion with dietetics, which is being carried on by Professor Mellanby and his assistants. Steps are being taken to establish an experimental farm in direct association with the department of experimental pathology and cancer research. Cases of malignant diseases treated at the General Infirmary at Leeds are being followed up along the lines of Dr. Gretta Wardle, whose previous report on the late results of operation for cancer of the breast (Ministry of Health Reports No. 23) was noticed in our issue of August 14th, 1926 (p. 318). The publication of a pamphlet entitled *Notes on Cancer for Medical Men*, prepared by the Medical and Scientific Committee of the Council, was noted by us a few months ago (October 23rd, 1926, p. 746); it has been sent to every registered medical practitioner in Yorkshire, and a copy can be obtained free by medical men residing elsewhere on application to the offices of the Yorkshire Council, 47, Park

Street, Leeds. This pamphlet contains two short sections directly addressed to the public; the first is on the education of the public on cancer, and the second consists of questions and answers. Copies of these sections can be obtained as leaflets by any medical man desiring to distribute them among his patients. The Propaganda Committee had cancer stalls at the health exhibition in Hull and Rotherham, and it is proposed to have stalls in other towns during cancer exhibition weeks. In its appeal to the public the Council takes care to emphasize the essential importance of an early visit to a doctor for diagnosis in every case in which there is any suspicion of cancer.

THE HUNTERIAN SOCIETY, LONDON.

The connexion between the Hunterian Society and the City of London was illustrated at the annual dinner on February 10th by the presence of the Lord Mayor. Dr. Irwin Moore, in proposing the health of the Lord Mayor and Corporation, referred to the many-sided efficiency of Sir Rowland Blades, and expressed the gratitude of the society for the hospitality accorded to it at the Mansion House. The Lord Mayor, replying, mentioned that he had attended a meeting of the society—a somewhat unusual occupation for the chief magistrate of the City. He went on to refer to other links between the City and the science of healing, and instanced the Barbers Company, originally called the Barber-Surgeons Company at its foundation in 1540, until in 1745 the surgeons severed this association. It possessed a priceless Holbein and some valuable plate, including very fine loving-cups. The Apothecaries Company, with their Hall in Blackfriars, constituted another similar association, and the Corporation, in addition to being responsible for the health of the City, was the sanitary authority for the Port of London. Sir Rowland Blades expressed surprise that more medical practitioners had not become Lord Mayor of London, though they were to be found in both the House of Lords and the House of Commons. The late Sir Thomas Crosby, who had filled the post in 1912, was the only medical man who had ever been Lord Mayor, and this was the more remarkable when it was remembered that Finsbury Square, Finsbury Circus, and Moorfields, which were in the City, had been the headquarters of the medical profession in London before Harley Street became popular. The toast of the Hunterian Society was proposed by the Lord Chief Justice, Lord Hewart, who, in a very humorous speech, cast a side glance at the way in which the medical profession appeared to be conspiring with the Church, the law, and the press. The president of the Hunterian Society, Mr. A. E. Mortimer Woolf, in his reply, stated that the society had been the first to institute discussions with other professions on subjects of common interest; and referred to the recent invitation of the Dean of St. Paul's to medical practitioners to preach in the Cathedral. The toast of "The Guests and Kindred Societies" was proposed by Mr. J. E. H. Roberts, and replies were made by Sir Francis Newbolt, Mr. Hugh Edwards, M.P., and Dr. H. C. Cameron. Sir James Berry proposed the health of the chairman, who, in responding, spoke of the value of the services rendered by the two secretaries.

OSLER PAVILION, HEADINGTON.

The Osler Pavilion, which has been erected on the Manor House estate, Headington, for the treatment of pulmonary tuberculosis, is a branch of the Radcliffe Infirmary, Oxford. The Headington estate, which consists of 140 acres of well wooded land, was purchased by the Radcliffe Infirmary in 1919. The British Red Cross Society contributed £15,000 in order to provide for tuberculous ex-soldiers, their dependants, and for the district in general. The remainder of the money required was raised by a public appeal, and the general funds of the hospital have not been touched. The pavilion, which faces south, contains forty beds distributed in eight single cubicles, eight two-bedded rooms, and two wards containing eight beds each. Recreation rooms for men and women are provided, and the pavilion is connected by a covered corridor with the dining hall and the kitchen block, to the east of which is a building containing an *x*-ray room, a small operating theatre, a pathological laboratory, and a room for light treatment. The old Manor House has been converted into a nurses' home, one wing being allocated to the permanent staff of the pavilion, and the other equipped as a preliminary training school for nurses. The buildings are heated by low-pressure hot-water boilers, Contributions from the county during the last year amounted to £26,000. The Minister of Health, who performed the opening ceremony, said that rapid progress was being made in eradicating tuberculosis by the combination of such different factors as the increasing resistance to the disease among the members of the population, the provision of scientific methods of prevention and treatment, the improvement of sanitary conditions generally, the rise in the social standard of living, and the spread of education among the general public about the prevention of tuberculosis.

MEMORIAL TO THE LATE MR. HAMILTON DRUMMOND.

A meeting of subscribers to the fund for a memorial to the late Mr. Hamilton Drummond, surgeon to the Royal Victoria Infirmary, Newcastle, who was killed in a motor car accident in June, 1925, when returning from a week in camp with his old regiment, the Northumberland Hussars, was held on February 7th, when it was agreed to place a medallion portrait, with a suitable inscription, in the infirmary, and to endow a university scholarship in clinical surgery to be known as "The Hamilton Drummond Memorial Scholarship." Mr. G. Grey Turner said that it would be available during the first two years after graduation, and Sir Thomas Oliver that the proposal would be cordially accepted by the College of Medicine. Subscriptions to the fund have been limited to five guineas, and there has been a gratifying response to the appeal on the part of laymen as well as medical practitioners. The general subscription yielded £866, and a further sum of £268 has been subscribed or promised towards the special Yeomanry account. It is confidently anticipated that £1,200 will eventually be available.

THE WELSH TUBERCULOSIS ASSOCIATION.

Colonel S. Lyle Cummins, professor of tuberculosis in University College, Cardiff, has resigned the additional office of principal medical officer of the Welsh National Memorial Association. He informed the meeting of the Council of the Memorial Association on February 4th that his experience during the last five years had convinced him that the offices should be separated and that the principal medical officership should be a full-time appointment. Mr. David Davies, M.P., who was in the chair, announced that Professor Cummins had consented to accept the position of director of research to the association, to which a salary of £250 a year would attach. The chair of tuberculosis was founded in 1921 by Mr. David Davies and his sisters, by a gift of £12,500. It was announced at the meeting that they had decided to augment this endowment by a further sum of £2,000. Dr. D. A. Powell was appointed principal medical officer; he was one of the first officers to be appointed by the association when it was established in 1911, and with the exception of the war period has continued in its service ever since. He has recently been medical superintendent of the North Wales Sanatorium in the Vale of Clwyd, near Denbigh.

Scotland.

CARNEGIE TRUST FOR UNIVERSITIES OF SCOTLAND.

THE twenty-fifth annual report of the executive committee of the Carnegie Trust for the Universities of Scotland, dealing with the academic year 1925-26, was submitted to a meeting of the Trust at the Universities Bureau of the British Empire on February 9th. Lord Sands, chairman of the trustees, presided. An allocation of funds for the quinquennial distribution, 1925-30, came into operation at the beginning of the year under review. To the universities and extramural institutions a sum of £231,225 had been allocated as follows: St. Andrews, £38,000; Aberdeen, £40,000; Glasgow, £60,000; Edinburgh, £60,500; and extramural institutions, £32,725. The way in which the total was distributed was: for libraries, £24,225; for buildings and permanent equipment, £196,500; and for teaching and general purposes, £10,500. While no altera-

tion had been made in the regulations for the award of fellowships and scholarships, the conditions relative to grants in aid of research had been revised. It had been found desirable to limit the grants in aid of illustration of papers to three-fourths of the actual cost certified by vouchers; in this way it was expected to enlist the author as his own censor. The holders of teaching fellowships are now required to devote not less than half of their time to research. With regard to assistance in the payment of class fees of students, the beneficiaries for the year had numbered 4,711, and had received a total sum of £57,212, as compared with corresponding figures for the previous year of 4,543 recipients and a total of £55,173. At November 30th last the sum of £55,116 had so far been paid for 1926-27 on behalf of 4,643 students. During 1925-26 the sum of £1,510 had been returned by former beneficiaries in repayment of advances for class fees, and forty-eight names had been added to the list of those who had repaid in whole or part. This number of individuals was the highest on record, and the committee felt gratified by this sign of a growing appreciation of the intention and expectation of the founder. The chairman said that the secretary had prepared a history of the work of the Trust, which would be a valuable book of reference to those interested in university work and development in Scotland. He pointed out that whereas the original capital of the Trust was £2,000,000, it had, during the past twenty-five years, expended £2,668,000 on educational and research work in Scotland. Notwithstanding this, the capital had, through prudent investment, augmented to £2,547,000, and the annual income, originally £100,000, was now £125,000. With regard to the payment of students' fees, the Trust required a declaration from the parent or guardian that without assistance by way of payment of part of the class fees the student could not attend the university. The proportion of the total of matriculated students who had the necessary qualifications and whose parents made this declaration could not be less than 70 per cent. The result of such a large number of claims was that the Trust could only pay approximately half the fees for each beneficiary; this, it had been estimated, was equivalent to one-eighth of the total cost of university education. Taking the parents' declaration, therefore, at its face value, in the case of the majority of students the ability of the parent to send son or daughter to the university would seem to turn upon a margin of one-eighth. It was difficult to avoid the conclusion that the declaration was often signed merely as a matter of form. The executive had accordingly arrived at the conclusion that in future new applicants could not be admitted as Carnegie students merely because the application papers and relative declaration were in order, and applications would be considered individually upon their merits in relation to family and other circumstances. It was believed that in this way the assistance rendered to the really necessitous would not be abridged by indiscriminate expenditure. Lord Haldane, in referring to the same matter, said that a special reason why the previous policy should not be continued was the phenomenal increase in the number of students at the universities, which made it more than ever necessary for the Carnegie Trust to husband its resources. It was no exaggeration to say that nowadays every boy or girl who had got the talent and cared for it could proceed to the university notwithstanding the attenuated resources of the parents. This was becoming possible in England also. He thought that as the universities increased more money should be found for them by the State, which was being forced to recognize that universities were national institutions. Sir Donald MacAlister said that the executive committee believed that it would be justified were it to allot the £60,000 annually available for paying students' fees to half the number of beneficiaries and give them twice the present award. Sir Alfred Ewing said that as a rule former beneficiaries who repaid money did not attach any conditions to the repayment, and the money then simply came into the general trust fund. It would be a great advantage if former beneficiaries would give the trustees a freer hand with regard to its expenditure and if a special fund were created from which the trustees would be free to make grants to specially necessitous cases which they were at present obliged to ignore. Mr. H. P. Macmillan said that Mr. Carnegie had fortunately been very generous in the terms of his deed in reposing a discretion in his trustees, and a new departure on such lines was quite within the powers of the deed.

Royal Medical Society of Edinburgh.

The annual dinner of the Royal Medical Society was held in the Hall of the Royal College of Physicians of Edinburgh on February 10th. Dr. W. R. Russell, senior president, occupied the chair, and Dr. Robert Hutchison, of the London Hospital, was the principal guest. After the usual toasts, the chairman proposed the toast of "The Guest," and Dr. Hutchison, in reply, proposed "The Royal Medical Society." He mentioned that the Society was unique in many ways—in its old customs, its self-management, and the freedom of its debates. It was now in its 190th session; it had existed side by side with the medical school of the university for nearly two hundred years, and had been an important adjunct to the school. In obtaining medical knowledge the first essential was to acquire knowledge by a solitary process in the wards and lecture rooms. If, however, the knowledge was to be of real use, it must also be digested, and this process of mental digestion was best done in company; in the Royal Medical Society the digestion of the students' knowledge could and did take place.

Housing Exhibition in Edinburgh.

The second annual Housing and Building Exhibition was opened in the Waverley Market, Edinburgh, on February 9th. In connexion with it Dr. W. Robertson, medical officer of health for Edinburgh, delivered a lecture on slums. He defined a slum as a series of houses unfit for human habitation by reason of disrepair, want of light, defective ventilation, and lack of sanitary and other conveniences. The slum stunted growth, dulled the senses, and soured the souls of its inmates. In Edinburgh the very poor houses of long ago had been swept away, leaving the solidly constructed abodes of nobles to endure, and many of them had become the slums of the present day. The dining hall, dormitories, and spacious kitchens of olden days had been subdivided by long dark passages from which eight or ten separate tenements could be entered. Many of those living in slums tried to make the best of them, but too many lapsed into a condition of indifference, carelessness, and improvidence. There were two types of slum population—those who had been reared in the slums and preferred to live and die in them, and those who had gravitated there and were willing, if poverty did not prevent them, to remove to better and higher rented houses. Slum clearance and the provision of alternative accommodation was an economic problem from beginning to end, and, in the long run, local authorities might be faced with the question of bearing the loss rather than tolerate the continued financial drain exacted for public health services.

Gifford Lectures in Glasgow.

A fortnight ago we gave an account of the argument of the earlier lectures of the Gifford course Dr. J. S. Haldane of Oxford is giving in the University of Glasgow. In a later lecture he quoted Johannes Müller, who had said that living organisms, which we regarded as unconscious, displayed no exercise of foresight or retrospect and no evidence of "learning" from experience. Conscious behaviour had two aspects, which could be distinguished as receptive and voluntary, although they were in fact inseparable. The prediction which controlled conscious behaviour was based on the presence of past experience called memory. Recognition of the distinction between psychological and merely biological phenomena seemed to be essential to clear thinking, just as the distinction between life and mechanism was essential to clear thinking and successful investigation in biology. It had been suggested that when life had attained to a certain stage of organic complexity conscious behaviour automatically appeared; but would it be safe to conclude that, in spite of superficial appearance, something of conscious behaviour must in reality be present behind what appeared to be blind organic behaviour of lower organisms and plants? This was a working hypothesis of which gradual verification

might come as knowledge advanced. Meanwhile the average person, confident in the practical success with which the Newtonian conception had been applied in many directions, continued to apply it to things to which it was not applicable and to suppose that such attempts constituted realism.

VICTORIA INFIRMARY, GLASGOW.

The governors of the Victoria Infirmary, Glasgow, have submitted their annual report for 1926 on the work of the institution, including the dispensaries and the convalescent home at Largs in Ayrshire. The total number of cases admitted during the year was 4,615, of whom 3,178 were surgical and 1,437 medical. The deaths numbered 374—8.1 per cent. of the cases treated to a conclusion; if deaths within forty-eight hours were excluded the mortality was 5.4 per cent. The cases of accident and minor surgical ailment treated without admission numbered 3,167. The throat and nose dispensary at the infirmary dealt with 2,282 patients. There were 20,891 attendances at the electrical department. The operations performed numbered 2,450. Of the total patients admitted the city of Glasgow furnished 3,560, while 1,049 were derived from twenty-one Scottish counties, ranging from Orkney to Wigtown and from the Western Isles to Fife; Lanarkshire sent 565, Renfrewshire 240, and Ayrshire 128. Three patients came from England, two from Ireland, and one from Canada. In the clinical research laboratory 1,935 baeteriological, chemical, and blood examinations were carried out, and 607 microscopic and histological examinations made; special investigations were conducted regarding leptothrix meningitis, myelogenous leukaemia, and the internal secretory glands. At the Bellahouston dispensary there were 42,066 consultations, an increase of 4,405 over the previous year, which is a gratifying demonstration of the utility of the dispensary in the densely peopled area it serves. The sum expended upon the maintenance of the infirmary, dispensaries, and convalescent home amounted to £48,356. The subscribed income for the period was £26,298, which, together with revenue from other sources, fell short of expenditure by £860. The new wing, to be opened shortly by Sir John Gilmour, Secretary for Scotland, which will accommodate 120 extra patients, will involve an additional annual expenditure of about £14,000. The contributions received from patients during the year amounted to £735. The employees' contributions totalled £10,551, a reduction of £455 on the previous year. In view of the industrial conditions of the year a greater decrease might have been expected. The governors highly appreciate the generous contributions of employees during that difficult time. By means of a legacy for the purpose a complete wireless installation has been established, with ear-phones at patients' beds and loud speakers in staff rooms. The building of the auxiliary hospital at Thorntonhall, near Glasgow, the estimated cost of which is £50,000, will begin at an early date.

Ireland.

THE CAMPBELL ORATION, BELFAST.

THE Robert Campbell Memorial Oration was delivered by Sir John Campbell, M.A., F.R.C.S., in the Medical Institute, Belfast, on February 10th. Dr. Nolan, Downpatrick, President of the Ulster Medical Society, occupied the chair, and there was a large audience. The title of the oration was "The renaissance of surgery in Belfast." The speaker dealt with the youth of the late Mr. Robert Campbell, and the effect of his country surroundings and early education on his future career. After referring to his love for the classics, his training in anatomy, his invaluable experience as an assistant in England and his hospital appointments in Belfast, which all gave him the opportunities for the development of his original and logical mind, Sir John Campbell enumerated his operations for perforation in typhoid fever, for hernia in infants at any age, his differentiation of the forms of appendicular trouble and of tuberculous peritonitis, and his investigations of affections of the thyroid gland. The lecturer then went on to discuss the present hospital system, the necessity for change, and the difficulty of providing for patients with only very moderate means who required skilled surgical treatment and nursing. The work done in the past inspired hope for the future; McKeown's removal of steel bodies from the eye by the electro-magnet, and his removal of unripe cataract were examples. *X*-ray treatment, vaccines, insulin, the causes of monstrosities, and many other subjects still awaited further investigation and gave scope to the energies of youthful enthusiasm. A vote of thanks, moved by Professor Fullerton, P.R.C.S.I., and seconded by Mr. Howard Stevenson, was carried by acclamation, and the chairman presented Sir John Campbell with the gold medal of the oration. Sir Thomas Houston, honorary secretary of the Campbell Memorial Committee, on behalf of the committee, presented to the Ulster Medical Society two replicas of the medal, which was designed by Miss Praeger. The reverse shows the head of the late Robert Campbell, and the obverse the figure of a surgeon bandaging the limb of a child, seated on its mother's lap, with a quotation from Hippocrates, "Where there is the love of man, there is also the love of the art," which had been suggested by the Vice-Chancellor of the University.

PAYMENT OF DISPENSARY DOCTORS' SALARIES WHILE ON SICK LEAVE.

The Ministry of Home Affairs (Northern Ireland) has had under consideration the recommendation made by the Board on November 16th relative to the deductions from the salaries of the dispensary medical officers of Enniskillen and Tempo dispensary districts, and the amounts paid by the Board to Dr. M. E. McBrien for his services as temporary medical officer of the respective districts during the illness of the permanent officers. The Ministry inform the Board that, having regard to the agreement in 1920 made with the dispensary medical officers regarding the payment by them of substitutes employed during illness, the Ministry approved of the deductions in question—namely, a sum of £25 4s. from the salary of Dr. Smyth, medical officer for the Enniskillen dispensary district, and £8 8s. from the salary of Dr. Carraher, medical officer for the Tempo dispensary district. When in 1920 a scale of salaries was made for the Enniskillen Union the medical officers of the area undertook, among other matters, that in the case of illness they would forgo their statutory rights to have substitutes paid by the guardians. This is the agreement referred to in the letter from the Ministry of Home Affairs. Enniskillen is the only union in Ireland in which such an arrangement was made between the guardians and their medical officials.

COUNTY SURGEON AND PRIVATE PATIENTS.

At a special meeting of the County Wexford Health Board a letter was read from the Local Government Department stating that in drawing up regulations under Article 15 of the County Scheme Order for the payment by patients it would be open to the Board to make provision to enable the surgeon to charge fees to private patients. The Board, after consultation with the surgeon, could fix a salary for him, subject to the approval of the Minister, to cover his services towards the patients—paying or otherwise—admitted to the hospital. The Board decided to fix a salary of £800 a year, with existing allowances, to cover the surgeon's services in respect of all patients admitted to the county hospital. The suggestion contained in the letter from the Department of Local Government and Public Health that the Health Board, in consultation with the county surgeon, should arrange for him an inclusive salary to cover the treatment of both private patients and poor persons for whose treatment the Board is statutorily responsible, is contrary to the recommendations forwarded on behalf of the profession to the Local Government Department. It was understood that the Local Government Department had accepted the principal suggestion made on behalf of the profession, that fees to be paid by private patients were a matter of arrangement between these patients and the county hospital doctor, without any interference on the part of the Health

Board. Regulation 7 (1) and (2) bears out this interpretation; its terms are as follows:

(1) The medical officer and surgeon of the hospital may agree with any person admitted to the ward as to the terms upon which such person shall be medically or surgically treated by him and shall be entitled to demand payment of such sums so agreed upon, but he shall out of any such sums received by him from such person pay to the Board of Health any sums that may be due from such person to the Board of Health under Regulation No. 5 which have not been paid to or recovered by the matron of the hospital.

(2) The medical officer and surgeon of the hospital shall, if the person admitted to the ward so requires, permit any duly qualified medical practitioner to have access to such person, and shall so far as possible act in consultation with such medical practitioner. The matron of the hospital shall keep a register, to be known as the Paying Patients' Register, in such form as shall be prescribed or approved by the Minister for Local Government and Public Health, and shall enter therein the particulars required in respect of each person admitted to the wards, and shall furnish an abstract therefrom at the end of each month in such form as may be prescribed or approved by the Minister for Local Government and Public Health to the secretary, to be laid by him before the Board of Health at their ordinary meeting.

SERUM TREATMENT IN DIPHTHERIA AND SCARLET FEVER.

Dr. J. S. Darling, medical officer, Lurgan Union Infirmary, reported to the Lurgan guardians that during 1926 there were treated in the fever hospital 226 cases of fever of all kinds, and that there were six deaths from diphtheria. There had been no deaths among 126 cases of scarlet fever, while during 1925 there had been seven deaths. By the use of the new serum the duration of the treatment of patients had been reduced from six weeks to four and three-eighths weeks. The cost of the serum treatment last year was roughly £100, and he thought the outlay fully justified itself. The Board noted that it was a very creditable record.

Correspondence.

THE MANCHESTER MEDICAL SOCIETY.

SIR,—As the Manchester Medical School is now well over 100 years old, it seems desirable that material relating to its history and the history of medicine generally in the town should be collected carefully lest it should be lost. The Manchester Medical Society has therefore decided to collect and store in its library all material relating to this history, and we are now writing to appeal for such material.

It is difficult to define what is wanted, but we may make a few suggestions—namely, papers, such as minute-books or lists of students of the earlier medical schools, pictures of these schools, diplomas and certificates granted from the schools, reports of prize givings and inaugural addresses, photographs of the medical men of past generations, and letters and diaries written by them. The following episode may be used to illustrate the height of our ambition. In 1840, in the opening address, Thomas Turner, pointing to a small oval table, painted green and set on small wooden wheels, which stood near him, said: "Excuse me making a digression and directing your attention to that table; mean-looking, insignificant, intrinsically of no value as it is, it was the table of John Hunter. This is John Hunter's dissecting table. It would seem almost as if the glory of London anatomy were travelling northward, and that we have arrested it in Manchester. It is more than likely that, on that very table, John Hunter prepared some of those splendid specimens which now enrich the walls of the museum of the Royal College of Surgeons. Let us now, therefore, that we possess a relic of that great man, be stimulated, by the associations it awakens, to pursue the same path that he pursued." Alas! this relic has disappeared.

Doubtless the relatives of former leaders of medicine in Manchester are now scattered all over the world, but this letter may remind them that the memory of those leaders is still treasured.

Communications should be made to Dr. Leech, the Manchester Medical Society, at the University of Manchester.—We are, etc.,

ALFRED A. MUMFORD, M.D.,
President of the Manchester Medical Society.
E. M. BROCKBANK, M.D., F.R.C.P.,
Chairman of the Library Committee.

The University, Manchester, Feb. 17th.

THE MODERN TREATMENT OF HERNIA.

SIR,—The address by Mr. Geoffrey Keynes on "The modern treatment of hernia," published in your issue of January 29th (p. 173), introduces some points of great importance. Two of these I must content myself with emphasizing without further comment—namely, the usefulness of local anaesthesia in dealing with difficult cases and the undoubted value of the inguinal as opposed to the femoral route in dealing with femoral hernia.

To a third point I wish to refer at greater length. He very rightly deals somewhat fully with the use of fascial sutures according to Gallie's technique in operating upon large or recurrent herniae. I am struck, however, by certain points which emerge in dealing especially with inguinal hernia. He says in one place "The whole operation will

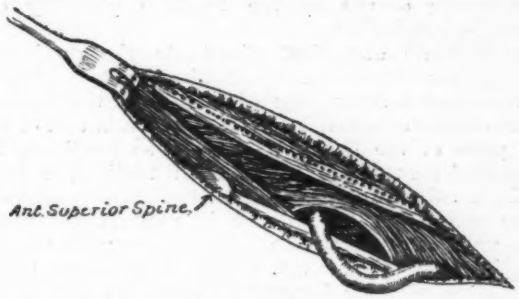

FIG. 1.—Dotted line indicates portion of aponeurosis to be split off.

FIG. 2.—Showing insertion of one line of suturing.

probably occupy from sixty to seventy-five minutes"; and again, "Meanwhile a second operator . . ." The method I have been using during the last two years does away with the necessity for a second operator and enables the operation to be finished in really very little longer time than the ordinary radical cure. It is applicable in all but exceptionally severe cases where the gap in the parietes is enormous.

The usual incision is made, but it is prolonged outwards and upwards to the level of the anterior superior spine. The external oblique is split in the direction of its fibres from the apex of the external abdominal "ring" if necessary up to the muscle fibres. A strip of aponeurosis about 1/4 in. wide is detached from the upper edge of the split external oblique, and this is cut free at its upper and outer end. The inner end is left attached, thus obviating the necessity for fixing the "tail" of the suture, saving time and also minimizing manipulation of the living suture. The sac having been dealt with, a Cleveland needle is passed through the thoroughly cleaned Poupart's ligament and conjoined tendon beginning at the inner end. The free end of the fascial suture is grasped and pulled through. This process is repeated as often as necessary until the neighbourhood of the internal ring is reached. The "suture" is then made

to encircle the cord and is finished off in the usual way. Neither in this step nor at any other stage must the living graft be drawn tight. The only instruments required are the Cleveland needle and a pair of Spencer-Wells forceps. From first to last the hand should never touch the fascial suture. I make a point of introducing the sutures through conjoined tendon and internal oblique at different levels (Fig. 2), otherwise there is a little tendency to splitting of the muscle and tendinous fibres.

If one strip of aponeurosis is not enough, a second may be used in the same way, to complete or strengthen the first series of sutures. As Mr. Keynes points out, the external oblique is always redundant. There is never any difficulty in getting it together again, and in any case it is well to realize that one is not depending upon the suture of this layer for the efficacy of the cure.—I am, etc.,

Liverpool, Feb. 6th. JOHN T. MORRISON.

ZOOLOGICAL NOMENCLATURE IN MEDICAL LITERATURE.

SIR,—I should like to reinforce the appeal of Professor R. T. Leiper, F.R.S., and the hope expressed by you in the BRITISH MEDICAL JOURNAL dated December 11th, 1926 (p. 1129), that something may be done to obviate the grave inconvenience caused by the tiresome pedantry of the archaeo-parasitologists.

May I quote one illustration? As the result of the strict application of the "law of priority" adopted by the International Congress of Zoologists the identity of the commonest anopheline mosquito of India and of certain other parts of the East, so long and so familiarly known as *Anopheles rossii*, is now hidden under the name of *Anopheles subpictus*.

Here surely was an instance in which the taxonomists might well have exercised the discretion with which they have invested themselves. The anopheline mosquitos derive much of their importance from the fact that they "carry" malaria. It would therefore seem a not unreasonable proposition that the commonest anopheline mosquito in the country where Sir Ronald Ross made his epoch-making discovery—a species, moreover, which he used in some of his original experiments—should have been allowed to retain the name by which it has been known for a quarter of a century. To malariologists in the East the name "*rossii*" is as familiar as a household word.

I cannot help thinking how much kinder Nature is than man, in spite of the "struggle for existence." She at least changes her species by a slow and imperceptible process of evolution, but man, as represented by the taxonomists, appears to take a delight (from a stern sense of duty) in "sinking" their names without scruple and without remorse.—I am, etc.,

Lahore, Jan. 5th. C. A. GILL, Lieut.-Colonel I.M.S.

ANTIGENS FOR THERAPEUTIC IMMUNIZATION.

SIR,—Although one is accustomed from time to time to see grave doubts expressed in medical journals concerning the therapeutic value of serums and vaccines, it is a new experience to read (BRITISH MEDICAL JOURNAL, July 31st, 1926, p. 177), on the authority of men like Sir Thomas Horder and Dr. N. S. Ferry, that the resultant products in the preparation of antigens for immunizing properties exist in a crude state, and that they contain products of no value in the process of immunization, and *which are not seldom extremely injurious to the patient*, as well as to the antigen itself. Some sixteen years ago, in my little book on tropical conditions, the following words were used with reference to immunization, and after a fairly extensive experience, gained partly during the war as physician in charge of fever and dysentery wards, I see no tangible reason for altering my opinions; indeed, Horder and Ferry's statements could only serve to strengthen them.

"Such may be an attempt to follow Nature's system of immunization, but what Nature has taken centuries to accomplish by the extremely slow adaptation of certain organisms to the environment, artificial immunization attempts to accomplish abruptly by profoundly modifying the vital fluids of the body. To assert that the very abruptness of such practices may upset the natural standard of life would be as rash as to deny it." . . . "Nor can we ignore entirely any possible ulterior results that may supervene after injection of some millions of dead micro-organisms into the tissues of a healthy individual."

In view of the widespread use of specific products in the prophylaxis and cure of disease—due possibly in no small measure to commercial exploitation—to the very definite limits to their usefulness, certainly in infective processes, and to the positive danger to the patient from their use, the time would appear to be overdue when an authoritative pronouncement should be made on the results of such practices.

Although there appears to be a consensus of opinion in favour of vaccines as prophylactics against the typhoid group of fevers, their use has been by no means invariably crowned with success nor entirely free from unpleasant results. The success obtained in France during the war was, of course, undeniable, especially if considered apart from other factors; but I have seen many severe inoculated cases from Gallipoli and other places where the sanitary conditions were not altogether ideal, and during a recent epidemic in a German town, among 1,500 inoculated cases over 70 developed typhoid of average severity. But some recent personal experiences have afforded much cause for reflection, without, however, offering any satisfactory solution.

1. Miss A. was inoculated in New York before departure, again in the Atlantic, and for the third time in the Mediterranean. Very shortly after arrival in Egypt a very serious form of enteric (with one relapse) developed. At the outset the symptoms were very obscure, and the abdominal symptoms were so severe and persistent that intestinal obstruction was suspected.
2. In the case of Miss B., shortly after the third inoculation (American practice) jaundice developed, which was very persistent; it was treated by emetine by the doctor in charge. Finally enteric was diagnosed, and after a prolonged convalescence (with one relapse) the patient recovered. Books written in the last generation allude to jaundice as a rare complication of typhoid fever; certainly during the war it was not an infrequent complication, and since then there would appear to be a number of sporadic cases which might repay closer investigation.
3. Miss C., also an American, had three inoculations six weeks previous to illness, which, clinically (fever, abundant rash, enlarged spleen), appeared to belong to the typhoid group, and was diagnosed by two Italian doctors as paratyphoid, but the abdominal symptoms and signs were too pronounced to allow me to agree. The fever subsided and other symptoms disappeared at the end of three weeks, but unfortunately no bacterial tests were possible.
4. The case of Mr. D., aged 42, was of an entirely different nature. The patient contracted posterior urethritis with complications. Had two separate attacks and underwent, in London, vigorous vaccine treatment, apparently with relief. A few years afterwards grave myocardial disease developed, and, after much suffering, proved fatal.

It has been seriously asserted in some quarters, on evidence not available, that this form of therapy does give rise to myocardial disease, and in this connexion it may be of interest to state that Luys asserts that gonococcal myocarditis is never found alone, that it is always associated with endocarditis, or as a sequela of the latter or pericarditis, conditions non-existent in this instance. If, then, as alleged, vaccine therapy is of no real value except in a few definite conditions, that it may possibly be "extremely injurious to the patient," it may be permissible to ask why is its employment so general and so much sought after by the public?

We may well smile at the crude notions of the ancient Egyptians concerning the medical art, with their invocations and magical formulae, but at least their "words of power" were invoked over products mostly innocuous.—I am, etc.,

Cairo, Jan. 19th. T. GERALD GARRY, M.D.

THE MENTAL DEFICIENCY BILL OF 1926.

SIR,—I agree with Sir Bryan Donkin that the definition of "mental defectiveness" in the above bill is "too vague."

The letters from Dr. Tredgold and Sir Bryan Donkin prove this to be the case, for the former limits the period of mental development to the first eighteen years of life, whilst the latter appears to limit it to the first twenty-five years of life, and it is quite possible that some other authority would place the limit at another age.

In order to prevent this uncertainty the definition of mental defectiveness should contain some precise time limit to the expression "mental development" as used in the

bill. By the English and American law persons come to majority at the age of 21 years, until which time they are under guardianship. Until they have attained their majority they can possess, but they cannot manage or control, property, for they are not supposed to have sufficient discretion or ability for this purpose. I think it would be generally admitted that mental development is complete at the age of 21 so far as "managing himself and his affairs" are concerned. If this age limit were introduced into the definition it would prevent any ambiguity and conform with existing law. I suggest a definition on the following lines:

"Mental defectiveness means an imperfect condition of mind due to its arrested development either before or during the first twenty-one years of life; this condition may be induced by injury, disease, or other cause."

I am strongly in favour of retaining the fourth class of mental deficiency under the title of moral defective. The Mental Deficiency Act, 1913, appears to me to legislate for two distinct types of mental defect: (1) a defect of the intellectual faculty; (2) a defect of the moral faculty.

The first three classes defined under the Act—idiot, imbecile, and feeble-minded—are different degrees of the same defect, namely, an intellectual defect. Many feeble-minded persons, owing to their defect, commit anti-social acts and are quite properly certified as feeble-minded persons. But there is a class of person who is morally defective without any intellectual defect. Such a patient I do not consider certifiable as a feeble-minded person. It is true that they require care, supervision, and control like the feeble-minded, but the feeble-minded person is, by definition, related to the imbecile and idiot—it is only a question of degree. The moral defective who has no intellectual defect cannot be said to be related to the imbecile, and he should not be certified as, or treated with, the feeble-minded.—I am, etc.,

ALLAN WARNER,
Medical Officer to the Mental Deficiency Committee.

Leicester, Feb. 7th.

HISTORY OF DIPHTHERIA.

SIR,—In Sir Humphry Rolleston's address (JOURNAL, January 15th) the late J. G. Adami is quoted as suggesting the transformation of some previously harmless diphtheroid bacillus to account for the appearance of diphtheria at the beginning of the last century—"a disease so sharply cut that it could hardly have been overlooked by all physicians until Bretonneau of Tours gave his classical description in 1821." Further references to the disease are given by correspondents, the earliest of which appears to be that by Gooch in 1740. I can record a much earlier reference than this to what is undoubtedly an epidemic of diphtheria, in a little book in my possession entitled "Miscellaneous Observations in the Practise of Physick, Anatomy, and Surgery . . . communicated in several Letters to Eminent Physicians and Learned Members of the Royal Society, viz., Sir Hans Sloane, Dr. Mead, Dr. Halley, Dr. Douglass, Mr. Petiver, etc., by Patrick Blair, M.D., F.R.S., London, 1718." In the section of this book headed "A second letter to Dr. Richard Mead concerning some Epidemical Diseases in Scotland," the following occurs:

"The Tussis convulsiva or Chink-cough, is also some Years Epidemical, and becomes universal among Children; as is a certain Distemper with us, called the Croops, with the Variety, that whereas the Chink-cough encreases gradually, is of a long continuance, seizes in Paroxysms, and the Patient is well in the interval. This Convulsion of the Larinx as it begins so it continues, so violently, that unless the Child be relieved in a few Hours, 'tis carried off within twenty-four, or at most forty-eight Hours. When they are seized they have a terrible snorting at the Nose and Squeeking in the Throat, without the least Minute of free Breathing, and that all of a sudden, when perhaps the Child was but a little time before healthful and well."

Here we have a description of an epidemic disease in children whose main symptoms, in fatal cases, were extreme laryngeal obstruction and stridor, and this can only have been diphtheria. As far back as 1718, therefore, the Klebs-Loeffler bacillus was as virulent as it is now. That it was so, too, much earlier than this, I could bring a considerable body of evidence to establish. In the books in my possession, published between the years 1570 and 1700, the disease "squinancy" (quinsy) is described, apparently common and much dreaded for its frequently fatal issue, and undoubtedly diphtheria would be included as a "squinancy," and would account for some of this mortality. In support of this opinion I will quote "The General Practise of Physicke . . . compiled and written by the . . . learned Doctour Wirzung in the germane tongue and now translated into English . . . by Jacob Mosan, germane, Doctor in the same facultie. London, 1617." In the second part of this treatise is a section entitled "Of the squinancie or swelling of the throate." This commences with a very involved description of varities of the disease, from which it appears that one of these varieties "ariseth about the throte, in the mouth, and about the throte boil, and very quickly stoppeth the breath." Further on he says:

". . . So doe the learned devide the same into foure kinds: *First* . . . *Secondly*, if about the throate there be no swelling seene on the outside, notwithstanding above all this, that the breath is so short that one would think the patient would be strangled." In the next paragraph he says: "But after what manner soever it commeth, it is alwaies a perillous sickness and especially the second kind, for that it is very quick and speedy, so that oftentimes it dispatcheth one in two or three daies; and commonly is more dangerous for children than for aged folk: therefore doe the Latinists call this kind of squinancy Strangulatorem, which is Strangler. . . ."

Some of these cases of squinancy occurring more commonly in children, with little or no swelling of the neck and causing death by laryngeal obstruction, could hardly be other than diphtheria. I should like to quote the learned Dr. Wirzung's treatment of the disease, but space forbids. There is no mention of any surgical interference.

Diphtheria, therefore, seems to have occurred in Europe at least 310 years ago, and there is no evidence of a sudden mutation of a diphtheroid bacillus into the true Klebs-Loeffler bacillus about 100 years ago.—I am, etc.,

C. F. SELOUS.

Tunbridge Wells, Feb. 7th.

THE PREVENTION OF GOITRE.

SIR,—The conclusive and successful experimental work of Colonel R. McCarrison on goitre prevention ("An experiment in goitre prevention," BRITISH MEDICAL JOURNAL, January 15th, 1927, p. 94) at the Lawrence Royal Military School, Sanawar, India, confirms his earlier evidence in 1913 and 1914 that endemic goitre is due to bacteriological impurities in the water supply, and that it can be eradicated by the provision of a pure potable water. Surely this far-reaching conclusion is so important that it merits the collaboration of the Medical Research Council and the Swiss committee for the investigation of goitre?

As pathologist to the Royal Sussex County Hospital, and later as a school medical officer to the West Sussex County Council, I collected data and reported them on the close association that was obvious in 1911 and 1912 between my analyses of the shallow well waters of the West Sussex villages (which were usually impure by bacteriological and chemical standards) and my school records of the prevalence of enlargement of the thyroid (amounting in many cases to true goitre) in the children and young people in these rural districts. Since then I have observed similar relationship between impure water supplies and goitrous enlargement of the thyroid in Plymouth and districts adjacent.

It appears that on such evidence goitre could be eliminated from the United Kingdom by the provision of pure water supplies in districts where it is not already eradicated, and that medical officers of health and school medical officers could determine this important hygienic question in their areas. I was surprised to learn in Switzerland last summer on good authority that goitre research workers were not known to have taken action on McCarrison's work, as drinking water supplies (at any rate in Swiss rural districts where goitre in endemic) are obviously open to gross pollution, though clear, cold, and sparkling.—I am etc.,

F. G. BUSHNELL, M.D.

Plymouth, Jan. 22nd.

THE CAPTAIN OF THE MEN OF DEATH.

SIR,—Sir Berkeley Moynihan, in his Hastings Lecture, acclaimed cancer as the "Captain of the men of death." This is to do an injustice to the real captain—heart disease.

Dr. Moore, medical officer of health for Huddersfield,

has kindly extracted for me, from the Registrar-General's Statistical Review for 1925, the number of deaths from cancer and heart disease during that year. The deaths in England and Wales in 1925 were: from cancer 51,939; from heart disease, including pericarditis, acute endocarditis and myocarditis, and angina pectoris, 64,059. If pericarditis, endocarditis, myocarditis, and angina pectoris are not included, the deaths from heart disease total 59,894. The return for 1924 shows a like preponderance of heart disease. Unfortunately the need for a campaign against heart disease has not stirred public imagination, although the British Medical Association, by its investigation into the causes of rheumatism, is giving the nation a much needed lead.—I am, etc.,

Llandudno, Feb. 3rd. NORMAN PORRITT.

MEDICAL GOVERNORS.

SIR,—To the roll of medical governors noted in the JOURNAL of February 12th (p. 295) may fitly be added the name of Sir Samuel Rowe, K.C.M.G. Qualifying in 1856, he was in 1862 appointed on the Army Medical Staff and sent to Lagos, where his administrative gifts were utilized both in the civil service and in dealing with the native tribes. In 1864-65 he came home on leave, and utilized the opportunity to take his degree at the University of Aberdeen. He then returned to West Africa, and for a number of years held various appointments, civil as well as medical. In the Ashanti war of 1873 he took a prominent part in withstanding the early invasion of the British territories, and during the war he acted on the staff of the expeditionary force under Sir John Glover. These services were recognized by the award of the C.M.G., followed later by promotion to K.C.M.G. From 1876 onwards he was governor successively of Gambia, Sierra Leone, West African Settlements, and Gold Coast and Lagos. He retired from the army with the rank of brigade surgeon, and in 1886 Aberdeen made him an honorary LL.D. He died at Madeira on his way home in 1888.—I am, etc.,

London, W., Feb. 14th. C. O. HAWTHORNE.

Obituary.

DOUGLAS DOUGLAS-CRAWFORD, M.B., C.M.EDIN., F.R.C.S.ENG.

Honorary Surgeon to the Royal Southern Hospital, Liverpool.

WE regret to record the death of Mr. Douglas Douglas-Crawford of Liverpool, on February 7th, at the age of 60. While apparently in his usual health and at work he collapsed suddenly, and passed away very quickly from cerebral haemorrhage.

A native of Liverpool, he spent his undergraduate life in Edinburgh, where he graduated M.B., C.M. in 1887, after which he became a demonstrator for the late Professor Melville Paterson at Dundee. He studied later in Berlin and at University College Hospital, and obtained the F.R.C.S. in 1894, in which year also he joined the staff of the University of Liverpool as assistant demonstrator of anatomy with Professor Paterson. Until the day of his death the importance of anatomy in surgery was an outstanding feature of his life's work. By every means in his power he sought to promote the study of anatomy as applied to surgery, both general and dental, and in 1912 was a vice-president of the Section of Anatomy at the Liverpool Annual Meeting. In 1903 he was appointed lecturer in surgical and applied anatomy; in 1907 lecturer in clinical surgery; in 1912 lecturer in surgery for dental students; and during the year 1925-26 he was chairman of the Faculty of Medicine. Throughout the whole period of his association with the University he took a remarkable personal interest in medical and dental students; his secret kindnesses and benefactions were very many, and his reticence was a fine element of his character. In 1895 he was appointed assistant surgeon to the Stanley Hospital, and full surgeon in 1898; twelve years later he became attached to the Royal Southern Hospital, where the bulk of his hospital surgery was carried out during the past seventeen years. At the time of his death he was senior honorary surgeon to this institution, and also held the posts of consulting surgeon to the Liverpool Dental Hospital, the Hoylake and West Kirby Cottage Hospital, and the Druids Cross Hospital. These posts were no sinecures, and most of the time an ordinary doctor would have deservedly counted as brief spells of recreation or leisure he spent in devoted attention to this work. During the war he served with the 1st Western General Hospital (Territorial) in Liverpool and overseas.

He was unstinted in giving, whether of work, advice, or more material means. He was an ardent supporter of, and acted as surgeon to, the Caledonian Association, and in this manner also found many opportunities of unselfish service. Among his colleagues he was universally popular, and in the Liverpool Medical Institution he held at different times the posts of secretary for pathological meetings and vice-president. By practitioners in a wide area and by private patients he was revered and loved for patent honesty and a great fund of human charity. A man of action rather than of words, he yet contributed from time to time, principally to the *Liverpool Medico-Chirurgical Journal*, articles of characteristic vigour; in debate or discussion he was often incisive, but always kindly and generous.

The memorial service held in Liverpool Cathedral was a fitting testimonial to the man and his work. It was attended by a very large congregation of sorrowing friends who, while mourning the sudden close of a valued life, were yet proud to recall its happiness and many merits. To his devoted widow we extend sincere sympathy.

ARTHUR HIRST WATKINS, M.D., C.M.,

Senator, Union of South Africa.

THE death occurred suddenly on the evening of December 24th, 1926, of Senator the Hon. A. H. Watkins, at the age of 76. He had been seized with cerebral apoplexy the previous evening. He was born at Brentford, Middlesex, and received his early education at Clevedon and his medical education at Glasgow and Edinburgh, graduating at Edinburgh in 1875, and obtaining the doctorate in 1883. He settled in South Africa in 1875, practising first at Alice in the Cape Colony, later at Boshof in the Orange Free State, and lastly at Kimberley. Here he built up a very large practice until in 1910 he went into politics. In that year he was elected a member of the Legislative Assembly, having contested the Barkly West seat as a Unionist; the Unionist party, it may be remembered, was the official Opposition to the South African party led by General Botha in the first Parliament of the united provinces of South Africa. He continued to represent this constituency until 1920, when he was defeated at the polls, but in the following year he was elected to the Senate. His election to the Upper House was undoubtedly the result of the respect which members of all parties had for him.

The medical profession in South Africa owes him much. He served the Griqualand West Branch of the British Medical Association well, and was many times its president. He was for a time a member of the board of management of the Kimberley Hospital. In 1910 he was appointed a nominee member of the Cape Colonial Medical Council, and was reappointed at each succeeding nomination until in 1921 he was elected president—an office which he continued to hold until his death. He did much, too, for education and devoted much of his time to its advancement; he was one of the founders of the Kimberley Public Schools, and was for many years chairman of the Kimberley School Board. He found leisure to write a novel on South African life, *From Farm to Forum*; though its literary merit was not great, it was yet of considerable value as a portrayal of conditions in that country during an interesting historical period.

He married in 1876 a daughter of the late Sir Thomas Fuller, and sister of Dr. E. B. Fuller; she died in 1908; he married again in 1910, and his second wife, who was the widow of Mr. James Brown, dental surgeon, of Kimberley, survives him. He had no children. He was buried at Maitland Cemetery in the Cape Peninsula. The funeral was attended by many senators and members of the Legislative Assembly, by the members of the (Cape) Colonial Medical Council, and numerous friends.

W. C. BEEVOR, C.B., C.M.G.,

Colonel, R.A.M.C., T.F.

COLONEL WALTER CALVERLEY BEEVOR, C.B., C.M.G., R.A.M.C. (ret.), died suddenly of heart failure in London on February 6th, aged 68. He was the son of Mr. John Beevor, M.P., of Newark-on-Trent, and was educated at Edinburgh, where he graduated M.B. in 1880; he took the M.R.C.S. in the same year. After filling the posts of house-surgeon at the Royal Portsmouth Hospital, the Newark-on-Trent Hospital, and the Midland Counties Eye Infirmary, he entered the Army Medical Service as surgeon on August 2nd, 1884, and was appointed medical officer of the Scots Guards in November, 1885. He became surgeon major, on special promotion for Ashanti, on March 25th, 1896, was transferred to the Grenadier Guards on June 26th, 1897, to the Coldstreams on September 14th, 1898, and again to the Scots Guards two months later. He reverted to the R.A.M.C. as major on May 25th, 1904, became lieutenant-colonel in August, 1904, and retired on August 20th, 1913. After his retirement he joined the R.A.M.C., T.F., North Midland Division, as lieutenant-colonel and D.A.D.M.S., and was promoted to colonel, R.A.M.C., T.F.; he became D.M.S. on December 3rd, 1914, and served as such throughout the great war.

He had a long record of war service: Sudan expedition, 1885, at Suakin, Egyptian medal with clasp and Khedive's bronze star; Ashanti expedition, 1895-96, mentioned in dispatches, specially promoted to surgeon major, star; north-west frontier of India, 1897, Tirah, mentioned in dispatches, *London Gazette*, April 5th, 1898, frontier medal with two clasps; South African war, 1899-1902, advance on Kimberley, actions at Belmont, Enslin, Modder River, and Magersfontein; operations in Orange Free State, actions at Poplar Grove, Dreifontein, Vet River, and Zand River; operations in Transvaal, actions at Pretoria, Johannesburg, Diamond Hill, and Belfast; mentioned in dispatches, *London Gazette* of September 10th, 1901, Queen's medal with six clasps, King's medal with two clasps, and C.M.G.; war of 1914-18, mentioned in dispatches, *London Gazette*, January 1st, 1916, and May 29th, 1917, C.B. He was the first to take and use an *x*-ray apparatus on active service, which he did in the Tirah expedition of 1897-98. He served on the staff of the Duke of Connaught at Lord Curzon's Delhi Durbar in 1902, and on the staff of Lord Northcote, Governor of Bombay, in 1903.

In 1890 he married the eldest daughter of Mr. Charles Taylor, J.P., of Horton Manor, Slough, and had one son and one daughter.

We regret to record the sudden death, at Weybridge, on February 2nd, of Dr. FREDERIC OSMUND STEDMAN, whose valuable work for the profession in Hong-Kong is well known to many of our readers. He was born in Devonshire in 1863, and in entering the medical profession followed the example of his father and grandfather, who both practised at Bookham in Surrey. From Epsom College he went with a scholarship to Charing Cross Hospital, and obtained the L.S.A. diploma in 1884 and the M.R.C.S. in the following year, graduating later as M.B., B.S.Lond., and proceeding to the M.D. degree in 1888. Before he went to China and settled in practice in Hong-Kong he had held the posts of house-physician, house-surgeon, and surgical registrar at Charing Cross Hospital, and of house-physician to the National Hospital, Queen Square, London. Dr. Stedman was keenly interested in the British Medical Association. For many years he took an active part in the work of the Hong-Kong and China Branch Council, holding office as vice-president in 1897 and 1903, and president in 1901. He represented the Branch upon the Central Council of the Association from 1904 to 1906, and again in 1920-21, and during 1921 he served also on the Dominions Committee. He was a member of the Representative Body at the time of the Annual Meeting at Cambridge in 1920, on his retirement after twenty-five years' practice in Hong-Kong. Since then he had lived at Weybridge, and devoted much of his leisure to the business of the local cottage hospital, of which he was honorary treasurer.

The death of Dr. CHARLES JOSEPH HARRISON of Chelsea occurred on February 7th, after a short illness due to influenza. Dr. Harrison received his medical education at University College Hospital; he graduated M.B., B.S.Lond. in 1892, obtained the diplomas M.R.C.S., L.R.C.P. in 1893, and proceeded M.D. in 1894. After holding the post of house-surgeon at the Victoria Hospital for Children he settled in Chelsea, where he practised for thirty-three years; he was honorary physician to the Chelsea District Nursing Association, and to the Chelsea, Belgrave, and Brompton Dispensary. During the war he acted as surgeon to the Fulham Military Hospital.

Dr. FRANCIS SORELL ARNOLD, who died at Painswick, Gloucestershire, on February 5th, in his sixty-seventh year, was a son of Thomas Arnold, M.A., a nephew of Matthew Arnold, and a grandson of Thomas Arnold, D.D., headmaster of Rugby. He received his early education at Clifton College and went up to Christ Church, Oxford, with a junior studentship in 1879; he graduated B.A. in 1883 with second class honours in natural science. After studying medicine at St. Bartholomew's Hospital he obtained the M.R.C.S. and L.S.A. diplomas, and graduated M.B., B.Ch.Oxon. in 1887. He then served as house-surgeon at the Radcliffe Infirmary, Oxford, and afterwards settled in general practice at Bovington and Berkhamsted. In later life he moved to Painswick, where he became medical officer to the Gyde Orphanage, and district medical officer under the Stroud Union. Dr. Arnold inherited some of the scholarship of his father's family, and had a sound literary knowledge of most of the modern European languages. He translated into English Bing's *Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord*, Guelpa's *Auto-intoxication and Disintoxication*, and Schlesinger's *Local Anaesthesia*. In 1899 he published a small work on the modern therapeutics of pulmonary phthisis, a subject to which he had given much thought during the time he acted as medical superintendent of the Hailey Open-Air Sanatorium. He was for many years a member of the West Herts Division of the British Medical Association, and latterly of the Gloucestershire Branch.

Dr. JOHN WILLIAM STEVEN died at his home in Edinburgh on February 10th; he had had a long illness following an attack of pneumonia, and had been completely laid aside from professional work for some months. He graduated at Edinburgh University in 1889 and took the Fellowship of the Royal College of Surgeons of Edinburgh ten years later. Dr. Steven conducted a very large practice, chiefly under the National Health Insurance Act, and he was greatly beloved by his patients. He was very fond of sport, especially of angling, and when he could seize an opportunity to escape would betake himself for several hours to the banks of some quiet border stream. He was unmarried.

Dr. FRANCES ELIZABETH HOGGAN, whose maiden name was Morgan, died at Brighton on February 5th. She was born in 1843; she received her medical education at Zürich, Prague, and Vienna, and graduated M.D.Zürich in 1870, six years before the passing of the Medical Act (1876) which opened the medical profession in England to women. She obtained the diplomas L.R.C.P.I. and L.M. in 1877, and the M.R.C.P.I. in 1880. She was one of the first women to practise in England, and, with Dr. Garrett Anderson, was a physician on the staff of St. Mary's Dispensary in Crawford Street, which subsequently became the New Hospital for Women. Owing to the ill health of her husband she lived in the South of France until his death in 1900, when she returned to London. Soon afterwards she visited America, where she became interested in the colour question, and published articles on this subject. When over 60 years of age she accompanied an exploring expedition to native villages of South Africa. For the last five years she had resided in Brighton. Her health failed during the last three months, but up to that time she had been very active in body and mind and took a deep interest in professional matters.

The Services.

ARMY MEDICAL SERVICES.

Scholarships for Sons of Medical Officers.

SIX years ago the Aldershot R.A.M.C. Fund Committee endowed four scholarships, one to be competed for annually at Cheltenham College. The foundation is for the benefit of the sons of all officers of the R.A.M.C. The first two scholars who entered Cheltenham under this scheme have just left, having taken fifth and sixth places respectively on the Woolwich and Sandhurst lists of December last. Both are awarded prize cadetships into those institutions on account of their high positions on the lists. It is not generally known that the sons of all medical officers, Regular, Special Reserve, Territorial, and Temporary, who died of wounds or disease during the great war are primarily eligible to compete for these scholarships, and that in default of candidates under this category, the sons of all living medical officers serving or retired come within the scope of this foundation. In the event of any boy falling short of scholarship standard money grants are sanctioned in suitable cases, and several boys are receiving these benefits at the college now. The value of the scholarships is approximately £50 per annum, tenable for four to five years, a purely classical or modern education being given at the desire of the parents or guardians. Further particulars can, we understand, be obtained on application to Major-General Sir S. G. Guise-Moores, K.C.B., Osborne House, East Cowes, Isle of Wight.

HONORARY PHYSICIAN TO THE KING.

COLONEL JOHN GRAHAM MARTIN, T.D., A.D.M.S., 55th (West Lancashire) Division, T.A., has been appointed Honorary Physician to the King in succession to Colonel G. H. Edington, T.D., retired.

FOREIGN DECORATIONS.

THE KING has granted unrestricted permission to the following officers of the Canadian Army Medical Corps to wear the medals indicated awarded by the French Government in respect of services rendered during the war 1914-19:

Medaille d'Honneur des Epidemies.—En Vermeil: Major G. Archambault, Captains L. B. Blagdon, R. Dumont, A. Larose, and G. Lefebvre. En Argent: Captains A. J. Lefleur and J. G. du Val.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

ON the nomination of the Council of the Senate the following have been appointed electors to the professorships indicated: Anatomy, Sir Humphry Rolleston, Bt.; Medicine (Downing), Professor A. V. Hill, F.R.S.; Pathology, Sir Charles Sherrington, G.B.E., F.R.S.; Biochemistry (Sir William Dunn's), Sir William J. Pope, F.R.S.; Animal Pathology, Sir Walter M. Fletcher, F.R.S.

At a congregation held on February 12th the degree of B.Chir. was conferred on W. L. Roberts (admitted by proxy).

UNIVERSITY OF LONDON.

THE following have been recognized as teachers of the University in the subjects at the institutions indicated:

University College.—Mr. H. A. Harris (anatomy).

Guy's Hospital.—Dr. J. M. H. Campbell (medicine).

St George's Hospital.—Dr. H. Gainsborough and Dr. T. S. Nelson (medicine), Mr. G. R. E. Colquhoun (surgery).

London Hospital.—Mr. W. Morris and Mr. G. W. Carte (oto-rhino-laryngology), Mr. V. J. F. Lack (midwifery and diseases of women), Dr. A. G. Maitland-Jones (diseases of children), Dr. W. J. O'Donovan (dermatology and venereal diseases), Mr. A. C. Perry and Mr. H. W. B. Cairns (surgery).

London School of Medicine for Women.—Miss Joan M. Ross (bacteriology and pathology).

University College Hospital.—Dr. C. White (midwifery and diseases of women), Dr. R. W. A. Salmond (radiology).

Maudsley Hospital.—Dr. W. Moodie (psychiatry), Dr. W. N. East (mental diseases of psychiatry).

The following is the constitution of the Boards of Examiners for the second examination for medical degrees in 1927, the chairmen of the respective boards being indicated by an asterisk:

Anatomy.—G. E. Smith (University College), *E. Barclay-Smith (King's College), W. E. Le Gros Clark (St. Bartholomew's Hospital Medical College), F. G. Parsons (St. Thomas's Hospital Medical School), T. B. Johnston (Guy's Hospital Medical School), W. Wright (London Hospital Medical College), Mrs. Lucas Keene (London School of Medicine for Women), J. E. S. Frazer (St. Mary's Hospital Medical School), together with the external examiners.

Pharmacology.—E. B. Verney (University College), O. Inchley (King's College), P. Hamill (St. Bartholomew's Hospital Medical College), N. Mutch (Guy's Hospital Medical School), O. F. F. Leyton (London Hospital Medical College), Swale Vincent (Middlesex Hospital Medical School), *Miss E. M. Scarborough (London School of Medicine for Women), B. J. Collingwood (St. Mary's Hospital Medical School), together with the external examiners.

Physiology.—J. C. Drummond, D. T. Harris, J. P. Hill (University College), R. J. S. McDowall (King's College), J. Mellanby (St. Thomas's Hospital Medical School), G. W. de P. Nicholson, *M. S. Pembrey (Guy's Hospital Medical School), H. E. Roaf (London Hospital Medical College), E. C. Dodds, Swale Vincent, J. H. Woodger (Middlesex Hospital Medical School), B. J. Collingwood (St. Mary's Hospital Medical School), together with the external examiners.

The scheme for the second medical examination Parts I and II for internal students approved in July, 1925, is to be continued for the session 1926-27.

A course of lectures on mental deficiency, supplemented by a course of clinical instruction, will be held at the central buildings of the University from May 23rd to 28th, 1927. Full particulars may be obtained from Miss Evelyn Fox, c.o. the University Extension Department, University of London, S.W.7.

The University medal at the M.B., B.S. examination for internal and external students, November, 1926, has been awarded to G. H. Steele of University College Hospital.

Applications are invited for the Laura de Saliceto Studentship for the Advancement of Cancer Research. It is of the value of £150 a year, is a part-time appointment, and may be held in conjunction with an appointment in a physiological or pathological laboratory, or clinical appointment affording special opportunities for the study of cancer. A statement of qualifications with the names of two persons as referees, one of whom should be the head of the laboratory, or the physician or surgeon under whom the candidate is working, should be sent to the Academic Registrar by July 1st, 1927.

The following have been appointed staff examiners in the subjects of examinations for medical degrees for 1927:

Bacteriology.—Dr. J. W. H. Eyre.

Forensic Medicine and Hygiene.—Dr. A. Allison and Dr. E. W. Hope.

Medicine.—Dr. C. Bolton (internal), Dr. F. R. Fraser, Dr. A. J. Hall, and Dr. C. Wall (internal). Associate-examiners: Dr. C. F. Coombs, Dr. A. G. Phear, Dr. C. M. Wilson, and Dr. A. Feiling.

Mental Diseases and Psychology.—Dr. C. H. Bond and Dr. E. D. Macnamara.

Neurology.—Dr. Gordon M. Holmes and Dr. C. M. Hinds Howell.

Obstetric Medicine.—Dr. J. S. Fairbairn and Dr. Eardley Holland. Associate examiners: Dr. J. B. Banister and Dr. F. J. Browne.

Oto-Rhino-Laryngology.—Sir William Milligan and Mr. Herbert Tilley.

Pathology.—Sir Bernard H. Spilsbury, Dr. S. McDonald. Associate examiners: Dr. J. M. Beattie and Professor A. Stokes.

Pharmacology.—Dr. W. E. Dixon and Dr. V. J. Woolley.

Physiology.—Dr. G. A. Buckmaster and Professor Winifred C. Cullis.

State Medicine.—Dr. W. A. Brend and Dr. R. A. Lyster.

Surgery.—Mr. C. C. Choyce, Mr. H. S. Souttar, Mr. C. A. Pannett (internal), Mr. W. Girling Ball (internal), and as fifth examiner if required: Mr. E. C. Hughes. Associate examiners: Mr. E. D. Telford, Mr. E. Rock Carling, Mr. C. M. Page, Mr. C. P. G. Wakeley, and as fifth examiner if required: Mr. N. C. Lake.

Tropical Medicine.—Sir P. Bassett-Smith.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B. (*Part I, including Forensic Medicine and Toxicology*).—*T. H. Berrill, B. J. Boulton, T. A Brand, †R. M. Norman, E. Southam, *†T. B. Wansbrough, A. R. Williams. (*Part I only*): G. D. J. Ball, O. J. P. Bollon, T. L. Cleave, R. D. Jenkins, Helen B. Murgoci, Ethel M. Redman. (*Part II completing examination*): Winifred P. Brinckman, J. M. Camps-Campins, A. M. Critchley, ‡T. F. Hewer, F. W. T. Hughes, §R. Jackson, E. R. Wide. (*Group I only*): Helen M. Aldwinckle.

* Distinction in materia medica, pharmacy, pharmacology, and therapeutics.
† Distinction in materia medica, pharmacy, pharmacology, therapeutics, and pathology.
‡ Distinction in pathology.
§ Distinction in forensic medicine and toxicology.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG.

OF the twenty-six candidates who presented themselves for the final examination for the M.B., Ch.B., in November, 1926, the following were successful in all subjects:

M. Abrams, P. Braude, Dora Dart, T. J. Faurie, Julia M. Fleming, M. Franks, F. C. Gray, R. Grieve, E. Meltzer, P. Menof, E. J. Rocher, Bella Shawsin, P. Toker, F. van den Steen.

These graduands are now eligible for registration with the various provincial medical councils. The degrees will be formally conferred on them at the University graduation ceremony next March.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting was held on February 10th, when the President, Sir Berkeley Moynihan, Bt., was in the chair.

Diplomas.

Diplomas of Membership were granted and Diplomas in Ophthalmic Medicine and Surgery were granted jointly with the Royal College of Physicians. (The names were included in the list of licences granted by the Royal College of Physicians of London published in the BRITISH MEDICAL JOURNAL of February 5th, p. 266, and February 12th, p. 310.)

Appointments.

Sir James Berry was appointed to represent the College on the Council of the Fellowship of Medicine, in place of Mr. C. H. Fagge, who has resigned.

Sir Cuthbert Wallace was appointed Bradshaw Lecturer for the ensuing year.

Presentation.

Two silver cups, bequeathed to the College by the late Herbert William Page, M.A., F.R.C.S., "in happy remembrance of his connexion with the College as a Member of the Council and of the Court of Examiners," were presented by Mr. Low as executor.

Council Election.

An election of three Fellows into the Council will take place on Thursday, July 7th, at 10.30 a.m., in the vacancies occasioned by the retirement in rotation of Sir John Bland-Sutton, Sir Cuthbert S. Wallace, and Mr. W. Thelwall Thomas. Notice of the election will be given to the Fellows by advertisement and by circular on March 11th. The last day for the nomination of candidates will be March 21st, and a voting paper will be sent on April 5th to every Fellow of the College whose address is registered at the College.

Hunterian Lecture.

A Hunterian lecture on testicular tumours of congenital origin will be delivered by Mr. J. Howell Evans, M.D., M.Ch., F.R.C.S., in the theatre of the Royal College of Surgeons, Lincoln's Inn Fields, W.C., on Wednesday, February 23rd, at 5 p.m.

Medico-Legal.

A SUMMONS WITHDRAWN.

THE further summons taken out by the Director of Public Prosecutions against John Kynaston, retired lieutenant-colonel R.A.M.C., of unlawfully, wilfully, and falsely using the descriptions "M.R.C.S., L.R.C.P.Lond.," contrary to the provisions of the Medical Act, 1858, was withdrawn before Mr. Cancellor, at Marlborough Street police court, on February 6th. At the preliminary magisterial hearing of the summons for an offence in contravention of the Dangerous Drugs Acts it was stated by the magistrate that while the accused would be committed for trial on that summons, the further summons under the Medical Act would be adjourned *sine die*. The accused was convicted at the Old Bailey, but the Court of Criminal Appeal quashed the conviction upon its appearing that the summons was brought under rules purporting to have been made under the sanction of an Order in Council which, in fact, never existed. Mr. Evans, on behalf of the Director of Public Prosecutions, said that following proceedings elsewhere relating to the other summons, he had been instructed to ask the court to allow the second summons to be withdrawn, and to this the magistrate consented. The previous proceedings relating to the summonses were reported in the BRITISH MEDICAL JOURNAL of October 16th, 1926 (p. 716), November 20th (p. 964), and December 18th (p. 1199).

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons completed the debate on the Address on February 14th, devoting the rest of the week to Supplementary Estimates and private members' business. In the House of Lords the Poor Law Bill, a measure consolidating the existing law in England and Wales, was read a second time on February 15th. Viscount Gage said the bill had obtained a second reading last year, and had been referred to a joint committee. Viscount Haldane complained that the Government did not tell the House when the larger measure of Poor Law reform would be introduced.

On February 14th, at the House of Commons, the Medical Committee of the Central Association for Mental Welfare met members of Parliament who are specially interested in the Mental Deficiency Bill, which has won a good place in the ballot. The text of the bill will not be available much before March 18th, the day chosen for the second reading debate, but, as explained by Sir Leslie Scott, who was in the chair at the meeting on February 14th, the text of last year's bill, as amended by a Select Committee of the House of Commons, will be followed, with the exception that the definition of mental deficiency is to be amended. The loss of the bill last session was chiefly due to lay and legal objections against this definition. The meeting on February 14th agreed that to overcome these objections a definite age (18 years) should be put in the bill as the maximum age at which a person could be certified as mentally defective. Medical opinion was unanimous against fixing any legal age, but the meeting agreed that if an age must be inserted in the bill 18 years would be likely to suit all views. Dr. Shrubsall, speaking with experience of all the schools of London, said very few young persons became mentally defective between the ages of 16 and 18. There was a strong feeling in the meeting that "moral imbecility" should be deleted from the list of grounds justifying certification, as such cases would come under the other categories, in particular feeble-mindedness. No decision to delete was taken, however, and "moral imbecility" will probably remain in the bill as printed and presented to the House. A member who will share in presenting the bill to the House on second reading spoke of the desirability of preventing, either by segregation or surgery, the propagation of the feeble-minded, but the meeting decided that to incorporate such a proposal would destroy the chances of the bill. The meeting was attended by several alienists and women doctors, and, among other members of Parliament, by Dr. Fremantle and by Major Cadogan, who spoke for those interested in the Borstal system.

The Parliamentary Medical Committee met for the first time this session on February 18th to arrange procedure for the session and to hear statements from medical members who accompanied the parliamentary delegations to Australia and Malta.

The Executive Committee of the Unionist Health and Housing Committee met, Dr. Fremantle presiding, on February 15th, to arrange its programme for the session.

Bills.

In the House of Lords, on February 15th, Viscount Astor introduced the Education (Employment of Children and Young Persons) Bill, which was read the first time.

Bills presented in the House of Commons include a Mental Deficiency Bill "to amend certain enactments relating to mental defectives." This is presented by Mr. Crompton Wood, supported by Sir Douglas Newton, Sir Leslie Scott, Mr. Rhys Davies, Mr. Cadogan, Dr. Fremantle, Dr. Haden Guest, Lord Apsley, and Mr. Geoffrey Peto. It is set down for second reading on March 18th. An Optical Practitioners (Registration) Bill, presented by Mr. West Russell, is down for second reading on May 13th. A Factories Bill, prepared by the Labour party and presented by Mr. Tinker, is set down for second reading on May 27th. A Nursing Homes (Registration) Bill is presented by Mrs. Philipson (second reading April 1st), and a Midwives and Maternity Homes (Scotland) Bill by Mr. Barclay Harvey (second reading March 18th). These last two may not be reached on the dates appointed, but should receive a second reading on other dates. A Maternity Benefit Bill "to extend maternity benefits to mothers in cases of miscarriage" is introduced by Sir Hugh Lucas-Tooth, supported by Dr. Vernon Davies, Dr. Watts, and other members.

Experiments on Dogs.—In the House of Commons, on February 14th, Sir Robert Gower (Hackney, Central, U.) presented a bill to prohibit the vivisection of dogs, and it was read a first time. It was put down for second reading on April 29th. On the same day the Home Secretary told Mr. Bromley (Barrow-in-Furness, Lab.) that he had received a resolution, passed at a public meeting, asking the Government to empower the police to grant a permit to anyone who had lost a dog to visit and inspect the kennels and animal houses attached to establishments where vivisection was practised. The Home Secretary said that he had no power to authorize the grant of such permits. Replying further to Mr. Bromley, the Home Secretary said that the idea of such permits was a good one. Perhaps Mr. Bromley would ballot for a bill on the subject.

Motions.

In the House of Commons, on February 15th, Dr. Watts gave notice that in Committee of Supply on the Civil Service Estimates he would call attention to the serious outbreaks of small-pox and move a resolution. Dr. Fremantle, on behalf of Major Tasker, gave notice to call attention on the Naval Estimates to the increased need of scientific research.

Treatment of Physically Defective Children.—On February 14th the Duchess of Atholl (Parliamentary Secretary to the Board of Education) stated that in thirty-five areas local authorities so far had made no provision for physically defective children, but in some of these areas voluntary agencies were at work. The Education Minister did not think that further action on his part was required at present. The education of children of school age who were suffering from more than one defect was receiving careful attention. Replying to Mr. Cave, the Duchess of Atholl said that a circular just published did not state that the President of the Board of Education would not allow local authorities to provide schools for defective children, nor was that his intention. The circular merely drew the attention of the authorities to the question of the completion of the medical services, which was of primary importance.

Spahlinger Treatment.—Mr. Neville Chamberlain states that the offer made to M. Spahlinger by the Ministry of Health is still open. This is to arrange for a scientific investigation in this country of his methods of treatment as soon as the necessary materials are forthcoming. Mr. Chamberlain is not at present in communication with M. Spahlinger.

Use of Poisons and Bacteria in War.—On February 15th Mr. Baldwin, in reply to Mr. James Hudson, said that until a definite assurance could be obtained that all the Powers were willing to adopt prohibitive measures against the military use of poisons and bacteria, the British Government must take steps to be in a position to defend itself against such attacks. Answering another question on the same day, Sir L. Worthington Evans said no animals had been used for experimental purposes in the Chemical Warfare Research Station at Sutton Oak.

African-born Medical Officers.—On February 14th Mr. Amery (Secretary for Dominion Affairs), told Sir Cooper Rawson the Government's policy was that natives of West Africa, who were qualified medical men and otherwise suitable for public employment, should be employed in the Government service there. In the Gold Coast, out of a total medical staff of sixty-seven, three were Africans. The Colonial Government must make the best use of the staff at its disposal, and he could not see his way to interfere with the Governor's exercise of his discretion. Sir Cooper Rawson raised this question in consequence of a proposal to appoint a native doctor to succeed a European doctor at Dunkwa, Gold Coast Colony, where there are over forty European residents.

including women, the nearest European doctors being at Sekondi and Kumasi, six and a half and four and a half hours away respectively.

Pensions.—Major Tryon told Mr. Robinson that experience of the past year had shown that where old wounds inflicted in the war had broken down more than seven years after discharge the cases were, for the most part, restored by treatment. If in any such case the man, after treatment, was found to be seriously incapacitated, the making of an appropriate grant was considered. In a case where a first application in respect of a shrapnel wound had not been made till more than seven years after discharge treatment had been provided.

Factories Bill.—Answering Mr. P. J. Hannon, on February 10th, Sir William Joynson-Hicks said the Government had decided to introduce the Factories Bill at the beginning of the next session in November next, so that it could be read a second time before Christmas and pass into law in 1928. He expected during the next few months to receive deputations from manufacturers and organizations of workers.

Notes in Brief.

In the year ended March, 1925, the average weekly cost of maintaining lunatics at institutions at the charge of the guardians in England and Wales was 21s. 3½d. a head, and the average weekly cost of persons in Poor Law institutions 27s. 1½d. a head.

Importers of milk have to be registered and may be struck off if they import milk which does not comply with the Public Health (Imported Milk) Regulations. The amount of milk imported into England and Wales is negligible.

The Minister of Health is communicating with the London County Council about the provision of open spaces in London.

Thirteen outbreaks of foot-and-mouth disease were confirmed between January 1st and February 10th. In 1926 there were 204 outbreaks.

Additions have been made to the sanitary staff in Tanganyika Territory, and the training of native assistants and nurses is making rapid progress.

No bill dealing with slum clearances will be introduced by the Government this session.

One of the medical inspectors of the Home Office will, at an early date, investigate the incidence of lead poisoning in potteries using low solubility glazes. In the years 1916-26 cases of lead poisoning reported in such potteries numbered sixty-seven; sixty of these persons had previously been employed in factories using raw lead glazes.

In 1923-24 the expenditure on maternity and child welfare in England and Wales was £791,000; in 1924-25 it was £814,000; and in 1925-26 £897,000. The expenditure on the treatment of tuberculosis in the same periods was £1,337,000, £1,430,000, and £1,547,000 respectively; and in grants towards the provision of sanatoriums £87,000, £15,000, and £19,000. The expenditure on the treatment of venereal diseases was £303,000, £298,000, and £307,000; and on welfare of the blind £83,000, £95,000, and £104,000 respectively.

San Salvador has ratified the International Opium Convention.

In 1925 no deaths in any London hospital were certified as from tetanus following dog bites. Later figures are not available.

The percentage of recruits discharged from the army for medical reasons within three months of enlistment during the year ended September 30th, 1926, was 2.18.

Medical News.

AT the social evening of the Royal Society of Medicine on Monday next Mr. Percy Flemming, consulting ophthalmic surgeon to University College Hospital and to the Moorfields Hospital, will give an illustrated address consisting of topographical and medical notes on "Harley Street," at 9.30 p.m. Fellows and guests will be received by the President and Lady Berry at 8.30, and there will be an exhibition of prints and maps of the neighbourhood of Harley Street, lent by the London County Council, University College, the Wellcome Historical Medical Museum, Mr. Francis Edwards, and others.

THE International Society of Hydrology, whose president is Dr. Gustav Monod of Paris, will hold a conversazione at the rooms of the Medical Society of London on the evening of Thursday, March 3rd, when Mr. Lewis Abbott, F.G.S., will give a demonstration with the epidiascope on hydration and dehydration, the life history of silica from the colloid to the crystalline, including the birth, life, and death of the opal. Exhibits of hydrological interest from the Wellcome Historical Medical Museum will be on view. Representatives from France, Germany, Italy, Czecho-Slovakia, Holland, and Belgium have accepted the invitation. Any members of the medical profession who would like to attend are invited to communicate (by letter) with Miss Fox, 139, Marylebone Road, W.1.

AT the meeting of the Harveian Society to be held at the Paddington Town Hall, W., on Thursday, March 10th, at 8.30 p.m., Sir Berkeley Moynihan, Bt., K.C.M.G., C.B., President of the Royal College of Surgeons of England, will deliver the Harveian Lecture on diverticula of the alimentary canal.

THE Hunterian Oration before the Hunterian Society of London will be delivered by Mr. Girling Ball, at the Cutlers' Hall, Warwick Lane, E.C., on Monday, February 28th, at 9 p.m. The subject is "The value of modern methods of investigation in the diagnosis and treatment of haematuria."

THE Oxford Ophthalmological Congress will assemble at Keble College on the afternoon of July 6th, and the meeting will be held on the three following days. On the morning of July 7th a discussion on the results of the operative treatment of glaucoma will be opened by Dr. W. H. Wilmer, ophthalmologist-in-chief of the Johns Hopkins Hospital, Baltimore. The Doyne Memorial Lecture will be delivered on the morning of July 8th by Professor K. K. K. Lundsgaard of Copenhagen, the subject being "The pneumococcus in connexion with ophthalmology." One afternoon will be devoted to demonstrations in the scientific and commercial museums, and members are invited to exhibit pathological specimens, instruments, and apparatus. The official dinner of the congress will be held on the evening of July 7th in the hall of Keble College. Members who desire to take part in the discussion, or to contribute papers or specimens, should notify the honorary secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton, as soon as possible.

AT a meeting to be held on February 23rd, at 6.30 p.m., at the Royal Institute of British Architects, 9, Conduit Street, W.1, Mr. G. F. Barwick, late keeper of printed books at the British Museum, will give an address on the *Directory of Sources of Specialized Information* now being compiled by him for the Association of Special Libraries and Information Bureaux. Before the address there will be an informal discussion on public and special libraries: their spheres of service and potential relationship.

DR. G. A. SUTHERLAND will lecture for the Fellowship of Medicine on February 24th on fits and faints, at 5 p.m., at the Medical Society, 11, Chandos Street, W., and on February 23rd Mr. Gimblett will give a lecture at the Royal Westminster Ophthalmic Hospital on affections of the cornea. Dr. Wylie will give a special demonstration at the Central London Throat, Nose, and Ear Hospital on February 24th at 2 p.m. This demonstration and the two lectures are free to all members of the medical profession, but in the last case notice of intention to attend should be sent to the hospital secretary (Museum 1539). Beginning on March 7th, the Brompton Hospital will hold a six-day course of instruction, including demonstrations in artificial pneumothorax, radiology, and the use of the cardiograph. The Chelsea Hospital for Women will hold a course from March 14th to 25th, and there will be a comprehensive course at the Royal National Orthopaedic Hospital from March 21st to April 2nd. During the same fortnight there will also be a course, primarily for the general practitioner, at the London Temperance Hospital in the late afternoon. From March 28th to April 9th the Queen's Hospital for Children will provide an all-day course. A series of demonstrations on diagnosis and treatment will be given at the Royal Eye Hospital for the two weeks beginning March 28th. The Fellowship arranges practical courses in anaesthetics and courses in obstetrics; arrangements are also made for clinical assistantships in gynaecology. Copies of all syllabuses and of the *Post-Graduate Medical Journal* may be obtained from Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE programme of the Post-Graduate Hostel at the Imperial Hotel, Russell Square, W.C.1, for next week includes an address on Wednesday, at 9 p.m., by Mr. H. W. Carson, on ulcers of the lesser curvature, and on Thursday a symposium on ulcers of the tibia, under the chairmanship of Sir D'Arcy Power. Dinner (5s.) will be served at 8 p.m.

AN intensive post-graduate course will be held at the Great Northern Hospital, Holloway Road, N., during next week. Afternoon lectures will be given as follows at 2.15 and 3.15 p.m.: February 21st, Dr. Reynell, Anxiety neuroses; Mr. Kenneth Walker, Treatment of prostatic obstruction. February 22nd, Dr. McNee, Diseases of biliary tract; Mr. Zamora, Carcinoma of larynx. February 23rd, Dr. Semon, Diagnosis of skin diseases; Mr. Hunter, Surgery of the chest. February 24th, Dr. Bruce Williamson, Drugs in heart disease; Mr. Lane Roberts, Obstructed labour. February 25th, Mr. Saner, Cancer of rectum; Mr. Gimblett, Points of general interest in eye diseases. The entire work of the hospital, between 10 and 12, will be open to those attending. The course is free, and tea will be provided at 4.15 p.m.

AN afternoon post-graduate course in cardiology will be held at the Liverpool and District Hospital for Diseases of the Heart during the fortnight beginning March 7th. The fee for the course is one guinea; the number taking the course is limited to twenty. Application should be made to Professor Beattie, at the hospital, 34, Oxford Street, Liverpool.

THE Scottish Board of Health has renewed for one year the regulations with regard to the notification of infective jaundice.

AT a meeting of the Central Midwives Board for England and Wales, on February 3rd, Hammersmith and Lewisham Hospitals were approved as training schools. A letter was sent to a midwife informing her that when a doctor was in charge of a case the responsibility for it was his, and that the midwife must faithfully obey his instructions. In reply to a question from a medical officer of health it was stated that under the new rules the form for keeping ante-natal notes must be the one approved by the Board, though the local supervising authority would be permitted to exhaust any stock of the previously used type of ante-natal registers.

AT the thirteenth annual general meeting of St. Andrew's Hospital, Dollis Hill, for the professional and middle classes, when Cardinal Bourne was in the chair, it was reported that £30,000 is required for the provision of additional beds, the opening of a children's ward, and a home for the nurses and staff. The amount that has so far been contributed is £4,600, and an appeal was made for £15,000 to enable the building to be started immediately according to plans approved by King Edward's Fund. The hospital was opened in 1913, and although contributions are asked from patients who can afford to pay, no patient, it is stated, has ever been refused, whatever his nationality or creed, solely on the ground that he could not pay a fee.

SOME years ago—it seems a good many—Dr. Leonard Hill, F.R.S., exhibited a number of his own pictures; the collection seemed to prove that in art, as in science, he was specially interested in phenomena of air and light. He has now arranged a larger one-man show containing upwards of 120 works, most of them in oil, but others in water-colour and pastel. Some of them are elaborate pictures, others sketches, or, as it were, passing notes of colour effects. The water-colours are perhaps the most successful. The exhibition is being held at the Alpine Club, Savile Row, and will remain open until February 25th. It is well worth a visit.

AT the recent by-election in the Streatham Division Dr. James Kirkland was returned to the Wandsworth Borough Council, polling 3,638 votes in the Municipal Reform interest, against 520 and 328 recorded respectively for the Labour and Progressive candidates.

THE Henry Saxon Snell prize of the Royal Sanitary Institute, which is awarded every three years, will in 1927 consist of fifty guineas and the medal of the Institute; candidates must submit an essay on "Sanitary accommodation, appliances and fittings, for hotels and flats, with suggestions as to proper placing, arrangement, ventilation and lighting, particularly where there are no external walls in which windows can be placed." Essays must be sent on or before September 30th, 1927, to the secretary of the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1, from whom further information may be obtained.

THE late Sir John Sherburn, M.B., C.M., a former mayor and sheriff of Hull, and consulting surgeon to the Hull Royal Infirmary, has left estate valued at £144,583. He was a partner in the shipping firm of Bailey and Leatham.

THE Cambridge University Press announces that it will publish early next month a book by Dr. Bernard Hart entitled *Psychopathology: Its Development and its Place in Medicine*. The text will be founded on the Goulstonian Lectures of 1926.

THE first number of the *British Journal of Tuberculosis* appeared in January, 1907, so that its January issue is the coming-of-age number. A symposium of congratulatory comments includes contributions from Sir George Newman, Sir Arthur Newsholme, Sir Humphry Rolleston, Sir Robert Jones, Dr. Rollier, and others. In this issue Dr. Varrier-Jones describes, with illustrations, the Papworth tuberculosis colony, and Dr. Muthu gives a general survey of tuberculosis in India. An account of the American National Tuberculosis Association is supplied by its publicity director, Dr. P. P. Jacobs.

FOUR German universities will celebrate the anniversary of their foundation this year—namely, Würzburg, founded 1402 (exact date unknown); Tübingen, October 9th, 1447; Marburg, May 30th, 1527; and Breslau, November 15th, 1702.

WE have recently received the special number of *Bruxelles Médicales* devoted to the congress held at Brussels from June 26th to 30th under the name of *Journées médicales de Bruxelles*. The issue contains numerous illustrations, including photographs of prominent members of the congress.

AT the end of January a medical congress entitled Journées Médicales was held at Nancy, and was attended by Professor Forman, director of the Anticancer Institute of Luxemburg, and many physicians and surgeons of the surrounding provinces. Professor Vautrin, director of the Nancy Anticancer Institute, gave an address in which he denied that cancer was inherited or incurable. He emphasized the value of the work performed by various anticancer institutes, with especial reference to radium treatment.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

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MEDICAL SECRETARY, *Mediocera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

"B. B." asks whether ionization in a case of chronic otorrhoea of thirty years' standing is likely to cure or alleviate the condition, and, alternatively, whether this treatment would be likely to do any damage to the ear.

EPIPHORA.

DR. A. C. BALFOUR (Aviemore) writes: If "G. A." (Norfolk) will use a lotion of adrenaline chloride (P., D. and Co.) 1 in 8,000 I think his case of epiphora will improve. It only requires one or two drops two or three times a day.

RECURRENT TONSILLITIS.

DR. F. PEARCE STURM (Leigh, Lancs) writes: "Scrutator's" patient (BRITISH MEDICAL JOURNAL, February 12th, p. 312) possibly suffers from infection of the granulation masses containing extra-capsular lymphoid tissue, which occasionally grow in the tonsillar fossae after the most skilful enucleation of the tonsils. They are very troublesome, and if removed tend to recur with a persistence which almost suggests local malignancy. Beck of Chicago (*Applied Pathology in Diseases of the Nose, Throat, and Ear*, London, 1923) states that the condition is easily controlled by electro-thermal coagulation. As "Scrutator's" patient required the removal of septic teeth at the age of 15 years, she probably has some deficiency of calcium retention. I suggest, therefore, a trial of parathyroid and calcium, with the local application of Dundas-Grant's paint: Iodine 6 grains, acetic ether 2 drachms, and glycerin 6 drachms.

INCOME TAX.

Assessment of Income.

"FIDUS" holds a part-time appointment and commenced private practice at his residence as from February 8th, 1926. His first year's takings amounted to £51, and the "expenses of practice, of course, exceed this." His inspector of taxes says he must include the annual value of the house, which he owns, and that he cannot deduct the amount of his professional loss from the assessment of his salary.

*** It is correct that the annual value must be included in the statement of his total income. The assessment of his salary must be dealt with as a matter separate from the private practice, but if he makes a loss on the latter he is entitled under Sec. 34, Income Tax Act, 1918, to an adjustment accordingly for the same year. In computing the result of his practice, however, the capital outlay in starting will have to be excluded from the expenses, and it is unlikely in all the circumstances that he will be allowed to deduct one-half the general cost of rates, wages, telephone, and "rent"—the rent being the amount on which he is assessed as owner. Further, the cash basis is inapplicable to a new practice, and he will have to bring into the computation of the first year's profits the value of the book debts due to him at the end of the year.

"S. C." seeks advice as to how he should declare his income from property and shares in his statement of total income.

*** Such income is returnable on the basis of the amount received in the year of assessment. When changes in ownership are involved, or are likely to be, it is advisable, unless the amount of the total income is immaterial, to state the facts

briefly in a note accompanying the return. Where property is concerned, the amount of the income to be included is correctly the proportion of the annual value, according to the period for which the property has been owned, in the year for which the return is made.

Information as to Capital.

"L. C." inquires whether the income tax authorities are entitled to information as to the source of the *capital* which he put into the purchase of a practice.

*** The authorities are concerned with the proper assessment of "L. C.'s" *income* either for the present or any previous year as far back as April 5th, 1920, and we cannot see any grounds on which they could claim that the source of his capital was relevant to his assessment. If not relevant they have no right to a reply, and if the inquiry is put and pressed "L. C." might write again after ascertaining the grounds for the inquiry.

Cash Receipts Basis.

"KLAXON" has taken over a practice as from October, 1926, and has been informed by the local authorities that for the half-year to April, 1927, he will have to pay on one-half of his predecessor's assessment and that he will be assessed in future on the basis of his book debts.

*** As regards the first point, the position is that he is liable to be assessed according to his predecessor's past average profits —that is, on one-half of the gross assessment so calculated, less all the personal allowances which may be due to him. If, however, "Klaxon" can show that the earnings of the practice fell short from some specific cause since or by reason of his succession, then he will be entitled to have the assessment for the six months to April, 1927, adjusted to the amount of his earnings. If such an adjustment is probably due, no doubt he can arrange with the inspector of taxes for the assessment to remain in abeyance until after March. It is assumed that "Klaxon" is not collecting his predecessor's accounts and bringing them into his own income tax returns, in which case the cash receipts would not reflect the full gross earnings of the practice and would properly be refused; but he should claim a reasonable allowance for outstanding debts likely to be wholly or partially irrecoverable.

Motor Car Transactions.

"E. J. B." bought an "R" car in 1921 for £273 and sold it in 1923 for £90, buying an "F" car for £160. He sold that car in 1926 for £15, buying an "M-O" car for £362.

*** The amounts to be claimed as *expenses* are as follows: (1) of the year 1923, £160−£90=£70; (2) of the year 1926, £362−£15=£347, less the excess of the gross cost (£362) over the original car outlay (£273)—that is, a net amount of £347−£89=£258. For the financial year 1926-27 he should also claim a depreciation allowance of 20 per cent. of £362=£72.

"M. H.'s" car transactions have been as follows: In 1915 he purchased a second-hand "S" car for £335 and sold it in 1927 for £30; he bought a new "St." car in 1925 for £275 and sold it in December, 1926, for £128; in July, 1926, he bought a second-hand "V" car for £320, which he is still using.

*** In our opinion the renewal or obsolescence claim is best made as for the year definite figures are ascertainable—that is, the year of sale. On that basis "M. H." should claim as follows: (1) "S" car, renewal cost as an expense of the year 1927, £335−£30=£305. (2) "St." car, obsolescence allowance, £275−£128=£147, deduct depreciation allowance given (that is, 20 per cent. of £275=£55), net claim £92, as an expense of the year 1926. (3) "V" car, 20 per cent. of £320=£64 as a depreciation allowance for 1927-28. The authorities may claim to restrict the above to allow for the falling value of cars generally on the ground that there was some loss of capital. If so perhaps "M. H." will send us their figures.

LETTERS, NOTES, ETC.

ACQUIRED MELANISM IN MOTHS TRANSMITTED BY INHERITANCE.

SURGEON REAR-ADMIRAL CHARLES M. BEADNELL, R.N.(ret.), writes: With reference to the note in the BRITISH MEDICAL JOURNAL of February 5th on acquired melanism in moths transmitted by inheritance, may I protest against the easy assumption that an "acquired melanism" had been proved by Dr. Heslop Harrison to be "transmissible by inheritance" on the basis of the alleged fact that certain moths fed in their larval stages on a lead-manganese contaminated diet begot, as descendants, melanized moths the larvae of which had been fed entirely on uncontaminated food. The expression "acquired melanism" would appear to me to beg the question. Sir Archdall Reid, who, more than any biologist past or present, has shown the confusion of thought, through faulty terminology, that has accompanied the long and heated controversy concerning the transmission of acquired characters, defines an acquired character as one developed under the stimulus of *use or injury* in contrast to an inborn character which is one developed under the stimulus of *nutriment*, inheritance being, according to this authority, the reproduction, as a nutritional character, by the offspring of a parental character of any sort. Now I submit there is no evidence in the case in point of any use or injury stimulus having called forth a deposition of pigment in the hypodermal cells of the metal-fed moths. On the other hand, it is surely obvious that a nutriment stimulus was present and that it was this that produced in the moths the inborn character melanism which, happening to be a variation in a direction favourable to the industrialized environment of the insects, was fostered and furthered by natural selection and reproduced as a nutritional character by descendants. In short, it was, I submit, the germ plasm of the moths that was directly acted upon by the circulating manganese and lead salts. If, at any point in the eighty odd million year line of germ cells of the multicellular organisms, the germ-plasm be affected by nutritional or mechanical stimuli to the point of definite structural adjustments, there would be brought about in descendant germ cells the potentiality (temporary or permanent according to the survival value) to induce related structural adjustments in certain groups of cells of that ephemeral excrescence on the germ cell that we term the *body*.

HERPES ZOSTER AND VARICELLA.

DR. H. TAYLOR (Banbury) states that in December, 1926, he attended a man who was suffering from a severe attack of herpes zoster. Ten days later, when the herpes was drying up, he was called to the patient's wife, who was suffering from a severe acute form of chicken-pox. Neither of the two patients had been away from the village for several weeks previously, and there had been no other case of herpes or varicella in the neighbourhood. Although the baby in the family had been in contact with the father during the acute herpes eruption, it escaped entirely.

JUDICIAL HANGING.

"EX-COLONIAL SURGEON" writes: Early one morning a few years ago I had to witness the execution of four coloured men in a gaol. As it happened, the executioner was anxious to finish his work as soon as possible in order to catch a train, and the scaffold held two at a time, so they were divided accordingly. When the first pair were hanged it was my duty to determine the fact of death. As a general rule, on auscultation the heart may be heard beating for about ten minutes after the drop, and on this occasion, when the sounds had ceased, there was nothing to suggest any vital spark. The bodies were cut down after fifteen minutes and placed in an ante-chamber, when I was horrified to hear one of the supposed corpses give a gasp and find him making spasmodic respiratory efforts, evidently a prelude to revival. The two bodies were quickly suspended again for a quarter of an hour longer. The executioner, who was thoroughly experienced, had done his part without a hitch, and the drop given was the regulation one according to individual physique. Dislocation of the neck is the ideal aimed at, but, out of all my *post-mortem* findings, that has proved rather an exception, while in the majority of instances the cause of death was strangulation and asphyxia. One such gruesome incident seems to me enough to condemn hanging in any civilized country.

*** The nature of death by judicial hanging has been discussed at intervals during the last fifty years, and Dr. J. de Zouche Marshall, who took much interest in the subject, wrote in our issue of November 15th, 1913 (p. 1341), to suggest that the time had come for further inquiry, since the recommendations of the Aberdare Committee of 1886, with reference to the length of the drop, were not being followed. General opinion at present is to the effect that with an expert hangman, using the submental knot, death is due to fracture dislocation of the axis vertebra and severing of the spinal cord, as described by F. Wood-Jones in the *Lancet* in 1913. With the subaural knot death by strangulation or fracture of the base of the skull seems to be more likely.

JOHN LEYDEN.

PROFESSOR FRASER HARRIS writes: At the close of your most interesting account of John Leyden, medical man and orientalist (BRITISH MEDICAL JOURNAL, February 12th, p. 300), you remark: "He is now almost forgotten." This doubtless is perfectly true, but inasmuch as his name occurs at the end of a beautiful stanza in "The Lord of the Isles," there is less excuse than otherwise for this neglect. Just before going out to India Leyden visited the Inner Hebrides, and thus Scott wrote of—

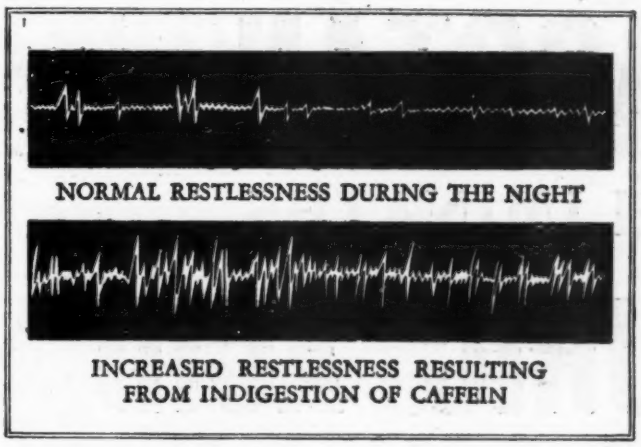
> "Scenes sung by him who sings no more,
> His bright and brief career is o'er
> And mute his tuneful strains;
> Quenched is his lamp of varied lore,
> That loved the light of song to pour;
> A distant and a deadly shore
> Has Leyden's cold remains."
>
> "Lord of the Isles," Canto IV, Stanza XI.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 42, 43, 45, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 63.

For neural patients



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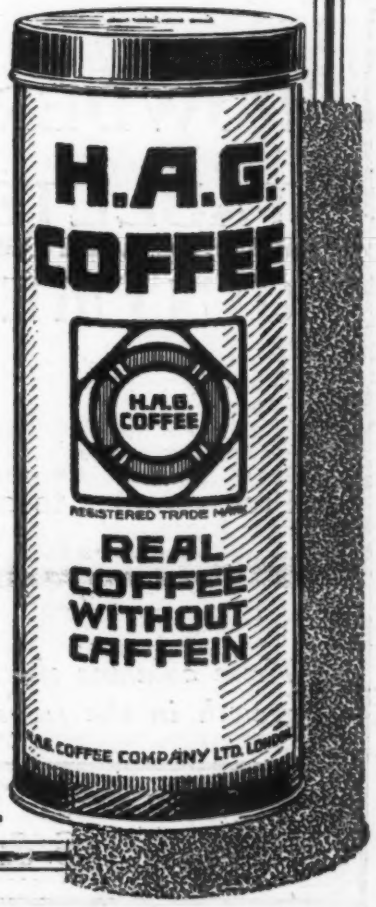

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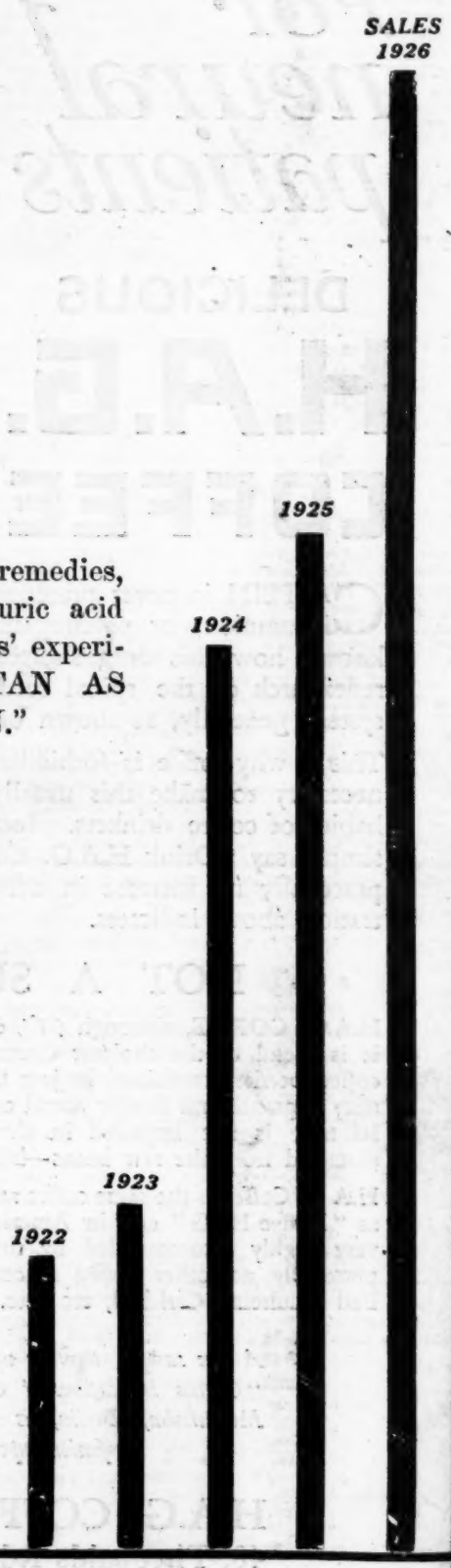

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